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# China Report

ECONOMIC AFFAIRS
No. 305

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## CHINA REPORT ECONOMIC AFFAIRS

No. 305

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#### CAUSES OF CHEMICAL FIBER FABRICS OVERSTOCKING STUDIED

Shanghai CAIJING YANJIU THE STUDY OF FINANCE AND ECONOMICS in Chinese No 5, 25 Oct 82 pp 43-48

/Article by Liu Zhiyuan /0491 1807 6678/, Chao Gangling /2513 6921 0109/, Cao Yang /2580 7122/, Ma Hui /7456 1979/ and Chen Qijie /7115 0796 2638/: "The Causes of and Solution for the Present Overstock of Chemical Fiber Fabrics"/

/Text/ I. Since the Third Plenary Session of the 11th Party Central Committee, readjustment of the economic structure has brought about a great development in our textile industry, particularly in the production of chemical fiber fabrics. In only 3 years from 1979 to 1981, the national output of blended terylene-cotton fabrics (including cotton-polyester fabrics and medium wool) was more than doubled. At present, there are ample supplies of chemical fiber fabrics of various designs and varieties in the domestic market, and the contradiction between supply and demand has been greatly alleviated. This is the most gratifying situation ever witnessed since the founding of the People's Republic.

However, some problems still exist in the production and supply of chemical fiber fabrics in our country. On the one hand, the supply of some brand name products of fine quality and low prices is short of the demand; while, on the other hand, some products with unpopular designs and varieties cannot be sold and are overstocked. According to statistics, the 1981 year-end inventory of blended terylene-cotton fabrics in the commercial departments throughout the country showed an increase of 144 percent over 1979. In Shanghai, for example, the stock of cotton-polyester fabrics and medium wool kept by the Shanghai Municipal Textile Procurement and Supply Station at the end of June 1982 was increased by 2 and 10 times respectively compared with the stock at the end of 1979, and a daily interest of 73,100 yuan had to be paid. The stock of medium wool in the wholesale departments under the Shanghai Municipal Textile Company was also more than the normal amount. Recently, we conducted our investigations in the relevant departments in Shanghai and discovered the main causes for the overstock of chemical fiber fabrics as follows:

- (1) More production than sales. In the past several years, the production of chemical fiber fabrics in Shanghai has developed very rapidly. The increase in the output of cotton-polyester fabrics and medium wool was even more rapid. In 1981, the output value of cotton-polyester fabrics and medium wool was 24.86 percent and 75.58 percent, respectively, more than in 1979. In the same year, however, the amounts of cotton-polyester and medium wool distributed by the Shanghai Municipal Textile Procurement and Supply Station for sale were, respectively, reduced by 1.71 percent and increased by only 38.2 percent, compared with 1979. Despite the state's decision to reduce their output in the first half of this year, the production of cotton-polyester fabrics and medium wool still exceeded the production plans. (The output of medium wool was 14.2 above the production plan.) The reason why production of chemical fiber fabrics had been so rapidly increased was, on the one hand. their popularity at that time and the shortage of supply for the demand; and, on the other hand, their high output value and high rate of profit. As we understand, their rate of profit at every link of production was higher than those of pure cotton fabrics by 23-30 percent. That was why many industrial enterprises, after completing their output value and profit quota, continued their one-sided quest for output value and profits by producing more chemical fiber fabrics without considering whether or not these products could sell well. As a result, the output was far more than the volume of sales and overstocking escalated.
- (2) Irrational prices. The irrational prices of chemical fiber fabrics can be seen from the following aspects: First, on the international market, the price parity between chemical fiber fabrics and pure cotton fabrics is 1:2: in our country, it is 2:1. Second, the price parity between chemical fiber fabrics themselves is also irrational. Since the second half of last year, the sales of chemical fiber fabrics, hitherto brisk, have become sluggish. To promote sales, the State Council decided in November of last year to lower the selling prices of several types of terylene fabrics. The average ranges of reduction were as follows: imported terylene, 15 percent; imported knit terylene, 17.5 percent; cotton-polyester fabrics, 12.01 percent; home-produced knit tervlene, 20 percent; and medium wool, only 6.35 percent. Because of the irrational price parity among chemical fiber fabrics after the price reduction, the wholesale volume at the municipal level of medium wool was reduced by 26 9 percent in the first half of this year. Third, the prices of chemical fiber fabrics produced in Shanghai were generally higher than those of the same products produced in other places by approximately 10 percent. Thus the sales of Shanghai-produced products were seriously affected. For example, Palace medium wool products are selling well this year, and in Shanghai, more than 2.5 million meters were sold in the first half year. However, only 20 percent of these products were produced in Shanghai and the remaining 80 percent were all produced in other places. The main reason for this difference is that the price of Palace in other places is 11-20 percent lower than Shanghai's.
- (3) Unpopular designs and varieties and untimely supply of goods. At the end of February 1982, for example, the Shanghai Municipal Textile Procurement and Supply Station had in stock 46.03 million meters of cotton-polyester fabrics, of which 39 percent were originally intended for exports but later

changed to be sold on the domestic market. Most of these fabrics were of light color and unsuited for the domestic market. The quality of a great deal of medium wool products had deteriorated, and the change in designs and colors was slow. Worse still, some of these color fabrics lack that furry feel which is the special feature of medium wool products. All these shortcomings are detrimental to the product's reputation. In recent years, because of the alleviated contradiction between supply and demand in chemical fiber fabrics, the consumers generally have chosen to buy what they want according to seasonal needs. Thus the seasonal element is being gradually felt in commercial management. However, some industrial enterprises usually cannot supply their goods on schedule. According to signed contracts, the municipality required the supply of 6.72 million meters of printed cottonpolyester fabrics in the first half of this year; however, only 3.65 meters were supplied. The Zhongbaishi Store ordered a quantity of printed cottonpolyester fabrics to be made into garments for summer wear. Since the goods were not delivered on time and the season was over, the goods were all returned. From this, we can see that any lack of coordination between the time of supply and the time of demand will mean the loss of selling opportunity and the overstock of commodities.

- (4) Lack of free circulation channels. At present, with the exception of a small portion sold by the industrial departments themselves, most chemical fiber products are sold by the state-run commercial units. The channels of commodity circulation not only are narrow, but also have the characteristic of being "open at the higher levels but blocked up at the lower levels." For example, some chemical fiber fabrics are available in Shanghai, but cannot be found, or bought, in some towns elsewhere or on the rural market. The reason is that the second-level procurement and supply stations are not eager to procure this type of goods for fear that they will not sell well locally. Some regions are still imposing regional blockades against the entry of Shanghai's chemical fiber fabrics. In the first half of this year, many second-level stations abandoned the plans of bringing in goods as worked out for them by the commercial departments. As a result, the volume of cottonpolyester fabrics and medium wool products which the Shanghai Municipal Textile Procurement and Supply Station should distribute to others for sale dropped by 15.2 percent and 43.1 percent, respectively, compared with the same period last year. The situation of being "open at the higher levels but blocked up at the lower levels" also existed in the suburbs of Shanghai. For example, there are abundant supplies of chemical fiber fabrics and medium wool products in the metropolitan area and these goods must be sold. In the suburbs, the lower the level, the less designs and varieties there will be. In the metropolitan area, there are over 100 designs, but there are only 20-30 of them at the suburban towns and only 3-4 in the basic-level retail departments.
- (5) Irrational distribution of profits between industry and commerce and its effects on the operation of commercial enterprises to a certain extent. For chemical fiber fabrics, the present profit rate for every link in production, namely, spinning, weaving and dyeing, is approximately 30-40 percent, while the plants and enterprises delivering their products to the Shanghai Municipal Textile Procurement and Supply Station charge a commission based on the

commercial wholesale prices as determined by the industrial-commercial pricing regulations, the present rate of commission being 7 percent. In other words, there is a 7 percent difference between the buying and selling prices of the commercial wholesale enterprises at all levels. However, the commercial departments can charge a commission of only 4 percent for the goods they distribute, while the first-level stations can have a gross profit of only 3 percent. In January of this year, the Shanghai Municipal Textile Procurement and Supply Station's actual expenses on the colored medium wool products, the bleached terylene-cotton fabrics, the mixed-color cotton-polyester fabrics and so forth were as high as 4-9 percent, resulting in losses. Irrational distribution of profits between industry and commerce affects the operation of not only the first-level, but also the second- and third-level wholesale stations. According to the regulations of pricing for transfers among commercial departments, the second- and third-level wholesale stations can draw a commission of only 4 percent. After the rise in bank interest rates, the difference between buying and selling prices for the second-level stations is only 2 percent. If the goods received cannot be sold within 3 months, they will suffer losses. That is why the second-level and third-level stations are unwilling to take in goods in large amounts, and are contented with the handling of small amounts of easily marketable varieties. Thus many designs and varieties are not available because of man-made obstacles, and this is disadvantageous to sales promotion for chemical fiber fabrics.

(6) New changes in the consumption pattern and clothing habits. First, let us look at the consumption pattern. A survey was conducted on the living conditions of 500 working families in Shanghai. In the first half of this year, compared with the same period last year, the proportion of spendings on clothing dropped from 17.45 percent to 16.58 percent; on their daily necessities, dropped from 18.42 percent to 17.48 percent; on fuel, dropped from 0.89 percent to 0.83 percent; but on food, rose from 63.24 to 65.11 percent of their total family expenditures on consumer goods. Such change in the consumption pattern shows that when their needs for clothing and daily necessities have been basically met and their living conditions have gradually improved, most working families are now spending more on food. According to another set of statistics, in the first half of this year, compared with the same period last year, the volume of retail sales in the municipality increased by 3.2 percent, but the volume of commodities for clothing dropped by 9 percent, with a marked decline in the sales of chemical fiber fabrics. Now, let us look at the clothing habits. Several years ago, young people, male and female alike, were fond of wearing reversible outerwear, and there was a market for medium wool products. Since last year, however, it has been the vogue for young people to wear woolen sweaters without any reversible outerwear on top. These sweaters serve the dual purpose of underwear and outerwear have greatly reduced the sales of medium woolen products. Furthermore, with the change in garment styles, people have turned to the use of nylon yern and other similar fabrics. Last winter, for example, people were fond of wearing ski jackets. This also seriously affected the sales of medium woolen fabrics which can be used as the outside of padded cotton jackets and outerwear.

Besides the changes in consumption patterns and clothing habits, another cause is the reduction of purchases in Shanghai from other places. From the middle of March to late June of this year, the Shanghai Textile Company organized the employees of 30 selected retail stores of a representative nature to conduct investigations and estimates on outside purchases of textile products. These investigations and estimates were conducted with every means at their disposal, such as personal observations, hearsay and enquiries. The data of estimates showed that in the first half of this year, both the absolute volume and the ratio of outside purchases of textile products in the municipality were on the decline. The daily sales volume of 30 percent of the retail stores was 467,122 yuan, of which, 118,727 yuan, or 25.42 percent, was from outside purchases. Compared with the same period last year, the absolute volume dropped by 12.43 percent, and the ratio dropped down to 0.62 percent after a 2.38 percent drop. /figures as published/ In textile products, the ratio of outside purchases of cotton-polyester fabrics in the first half of this year dropped from 32.21 percent in the same period last year down to 28.2 after a 12.45 percent drop. In chemical fiber fabrics, the ratio of outside purchases dropped from 39.89 percent in the same period last year down to 35.95, after a 9.88 percent drop. There are two main causes for the reduction of outside purchases this year: First, the development of the textile industry has improved the supply situation, and local purchases have increased. Second, the strengthened market control and the crackdown on economic crimes have reduced the activities of speculative selling, with the result that irregular purchases from outside sources have been greatly reduced.

- (7) Part of purchasing power absorbed by the circulation of imported chemical fiber fabrics in the market. According to incomplete statistics, from 1980 to the end of June 1982, the Shanghai Textile Station, the Shanghai Knitwear Station and the Shanghai Municipal Textile Company used the foreign exchange of both the central authorities and the locality to import approximately 58,519,000 meters of chemical fiber fabrics on different occasions. Since the color and quality of the majority of imported fabrics are good, and there has been a large reduction of prices for imported terylene fabrics since the last quarter of last year, these imported fabrics have a fairly strong appeal to the consumers and are selling fairly well on the market. According to the statistics by these units in the same period, the sales volume of imported chemical fiber fabrics (including wholesale and retail sales) was approximately 50,413,300 meters. These sales affected the sales of domestic chemical fiber fabrics to a certain extent.
- ii. To increase the sales of chemical fiber fabrics, reduce the overstock, speed up the turnover of funds, promote the healthy development of production and improve the economic results, we believe that, aside from organizing production strictly in accordance with state targets (for production restriction), the following measures can be adopted.
- (1) The main way to resolve the contradiction between production and sale of chemical fiber fabrics is to determine production according to sales.

The contradiction between the production and marketing of commodities is an external reflection of the contradiction between the innate value and use value of commodities. The value of commodities can be realized only when their use value is recognized by the consumers. Therefore, production must suit the needs of consumption before there can be a balanced production and marketing. The suitability of production to demand has two meanings: First, the total volume of commodities produced must correspond with the total volume of purchasing power for these commodities. Second, the product mix produced must correspond with the product mix in demand. The contradiction between production and marketing of chemical fiber fabrics in the past 2 years was mainly reflected in the excess of production to marketing and the unsuitability of some products to market needs. To determine production in accordance with marketing, we must first impress people at all levels on the need to determine production in accordance with marketing. For a long time in the past, it was a "sellers' market" in our country, because the supply of most consumer goods were short of the demand, and the main cause of contradiction between production and marketing was inadequate production. Therefore, the question of determining production in accordance with marketing did not receive much attention. Now the market situation is changing from the "sellers' market" to the "buyers' market." If the question of determining production in accordance with marketing still receives no attention, a serious imbalance between production and marketing leading to overstock will certainly result. Second, the production departments should not be concerned with output value and profit alone; they must be sure that their products can be easily sold. Output value and profit are certainly important indications of efficiency or inefficiency in enterprise management. However, if the products cannot be sold, the output value and profit will be meaningless. According to our investigations, some of the overstocked chemical fiber fabrics still have a good market in the countryside. Since these products yield low output value and profit, and the market demands frequent changes in varieties, the plants' output value and profit will be affected to a certain extent. In order that the production units will produce according to demand, we feel that instead of restricting their output value and profit targets, we must note whether the products are easily marketable. For the plants whose products yield lower output value and profit, but are welcomed by the consumers, their output value and profit targets can be set a little lower. For those plants whose products yield low profit but are selling really well on the market, the method of raising their shares of retained profits can be used as an incentive to production. Third, the system of management over the production of chemical fiber fabrics should be reformed so that it can be adapted to changing market demands. People's taste in the designs and varieties of chemical fiber fabrics can always change, and this calls for adaptability in industrial production. However, because of the high standard of specialization in production, adaptability is becoming increasing difficult. From raw materials to finished products, the production of chemical fiber fabrics goes through four stages, namely, fiber-making, spinning, weaving and printing-dyeing. These are done separately by four specialized companies. Should there be any change in the variety, all four companies must concur. This is time consuming so that by the time they are ready for the change, the demand has already varied. Therefore, we suggest that, if at all possible, all departments

connected with the production of chemical fiber fabrics be organized into an integrated body to undertake overall planning for production. This will make it possible for changes to be made more quickly. Fourth, contracts on ordering goods must be scrupulously observed. At present, the overstock of chemical fiber fabrics is largely caused by the failure to carry out contractual obligations, as shown by late deliveries causing the loss of seasonal opportunities for sales. Therefore we must stress the need for the contracting parties to fulf'll their obligations, failing this, compensation should be paid according to law. Fifth, a system of market forecasting should be set up in order that the trend of changes in demand can be reasonably predicted. An accurate knowledge of this trend is a prerequisite for determining production according to marketing. In order that the forecast can be accurate and comprehensive, a complete system of market forecasting should be set up. There should be special personnel and organs for market forecasting at every link from production to retailing. Commercial information at home and abroad should be collected extensively, and the trend of changes in the market at all ranges--long, short and medium--should be carefully analyzed so that accurate market forecasts can be worked out. The planning departments should attach great importance to the forecast results which should serve as the basis for them to plan production. It is true that it is now difficult for production to be determined completely according to marketing. However, we should at least be able to regulate production according to marketing, that is, to regulate production to suit the changing demand so as to reduce the amount of slow-selling varieties and to increase that of easily marketable ones. We must be able to plan production from the standpoint of the demands of consumption before the contradiction between production and marketing can be resolved.

(?) Price should be utilized as a lever to regulate the production and consumption of chemical fiber fabrics.

The law of value is an objective law in commodity economy. At the present stage of socialism in our country, conscious utilization of the law of value is of great significance in promoting the development of a socialist economy. At present, we must first suitably readjust the price parity between chemical fiber fabrics and pure cotton fabrics. In recent years, the production of der Lai fiber fabrics has continued its rapid development and their varieties have continued to increase. In effect, they have largely supplanted pure cotton fabrics as the main material for people's clothing and other daily necessities. On the other hand, the development of cotton is restricted by the allowed acreage, and the prices of cotton have been set too low so that heavy state subsidies are required. Therefore, a suitable price reduction of chemical fiber fabrics to stimulate consumption will induce people to use these fabrics in place of pure cotton fabrics as much as possible; and the purchasing power, originally intended for pure cotton fabrics, will be gradually diverted to chemical fiber fabrics. At the same time, reduction of prices for chemical fiber fabrics will necessarily mean the reduction of excessive profits for some plants. This will help compel the plants to improve their business management and lower their production costs, and also check the blind production of chemical fiber fabrics. Second, the irrational

As mentioned carrier, irrational price parity also exists among chemical fiber fabrics. To propose the sales of these fabrics, therefore, the price parity among them should be readjusted on the basis of their quality and the relations of supply and demand in order to achieve a balanced supply and demand. Third, the state's unified price policy must be strictly enforced, and there must be no disguised increased or reduced price. At present, certain localities and enterprises are making unauthorized changes, especially by disguised reduction, in the prices of chemical fiber fabrics. This induces the customers to "wait for further reduction" and affects the normal sales of chemical fiber fabrics. In stabilize the market, all regions and units must strictly reserve the unified price policy and must not change the prices of these fabrics at will.

(3) The circulation channels should be further cleared and efforts should be made to promote the sales of chemical fiber fabrics.

The thinnels for free circulation have an important bearing on the volume of sales. At present, there are not enough channels for commodity circulation and the situation of "open at higher levels but blocked up at lower levels" is one of the important factors affecting the sales of chemical fiber fabrics. In further clear the channels, we may start with the following steps: First, we have to expand the channels of circulation. Chemical fiber fabrics are now basically monopolized by the commercial departments and many varieties cannot be brought into direct contact with the consumers. This has an adverse effect on the sales of some fabrics. We must increase the channels of circulation in order to increase their sales. In a dition to encouraging the industrial departments to sell their own products, we can also adopt the method of industrial-commercial integration so that there will be direct links : tween factories and stores. Special counters for chemical fiber fabrics can be set up in some retail enterprises, and the trust trading companies, grocery wholesale departments and other commercial channels may also be allowed to handle their sales on a consignment basis. Second, the intermediate links in circulation should be reduced as much as possible. The present "Lira circuit formed of many links" is producing certain adverse effects on the sales of chemical fiber fabrics. We believe that the intermediate links in virculation for such products as chemical fiber fabrics, which require artive promotion, should be reduced as much as possible. Besides the distribution of goods among the second-level stations, the first-level tations should directly supply to the third-level stations, provided transportation is convenient; and the wholesale departments can hold their sales exhibitions in some large retail stores and specialized stores. To overcome the difficulty of transporting seasonal commodities in time, the first-level stations can set up their warehouses in different places. For example, they can set up their branch warehouses in places where most of the commodities will be sold, and the seasonal commodities can be stored there in advince, so that as soon as their transactions with the second-level stations are finalized, these commodities can be delivered immediately. Third, efforts should be made to bring chemical fiber fabrics to the countryside. The industrial and commercial enterprises should actively conduct surveys on

the demand for these fabrics in the rural areas, with particularly reference to the designs and varieties so that suitable items can be sent. If at all possible, the production brigades can be entrusted with the sales of these fabrics on consignment. If transportation facilities are inadequate in the countryside, even itinerants should be allowed to sell them on a commission basis. The commercial departments can also organize mobile sales exhibitions or set up stalls at the country fairs as a means of selling goods in the countryside. Fourth, the enthusiasm of the commercial departments in management should be aroused. In order that commercial departments will be more enthusiastic in selling chemical fiber fabrics, the factory prices of these fabrics should be appropriately lowered, even though their retail prices should remain unchanged. By this means, part of the profits for the industry will go to commerce as an adjustment of the present ratio of profit distribution between industry and commerce. For some varieties requiring active sales promotion, the high-level wholesale departments can grant a higher rate of commission for the basic level units. Fifth, the form of account-settlement should be reformed. At present, many basic-level wholesale or retail enterprises hesitate to take in too much chemical fiber fabrics for fear that the prices may be later reduced and bring losses. They are also afraid of overstocking because of poor sales so that their funds are tied up. Now the commercial departments have adopted some new forms of settlement, such as selling the goods before payment, periodical payments, delayed settlement of accounts, and so forth, which will to a certain extent relieve the basic-level enterprises of these worries, increase the sales of these fabrics and change the situation of being "open at the higher levels but blocked up at the lower levels."

#### (4) The scope of chemical fiber fabrics consumption should be expanded.

Production and consumption depend on and promote each other. Increased consumption will promote production, and increased production will in turn bring about new demands in consumption. Tapping the potential of consumption and guiding consumption intelligently will help create better opportunities for future production development. At present, our productive capacity for chemical fiber fabrics is quite large, and this product can be used for many different purposes. Therefore, it has a promising future as to development, and provided efforts are made to encourage its consumption, it will certainly become one of the principal consumer goods for our people, and have a profound effect on the entire national economy. For this reason, it should be fully utilized as the outside of lined jackets. There are two decisive factors in the sales of garments: first, their use as the top layer and second, their style. When the first requirement has been met, efforts should be made to produce suitable novel styles so that it can attract more consumers. This method may be considered: Not long ago, the Shanghai Renli Garment Store discovered the popular taste of consumers and used the slow-selling silk and nylon fabrics to make buttoned-collar jackets and ski jackets which were well received by the consumers. This experience deserves to be emulated. Another thing we should do is to change the ratio of the blend for chemical fiber fabrics so that these fabrics can serve as a substitute for more different fabrics. At present, the ratios in the makeup of cotton-polyester

fabrics are 80:20, 70:30, and so forth in foreign countries, while in our country, there is only one ratio, namely 65:35, and the scope of the use of our product is narrow. If we can produce some cotton-polyester fabric with less than 50 percent polyester, we will be able to use it as a substitute for pure cotton fabrics to a large extent. A third method for for us is to discover new uses of this product. In developed countries, 40 percent of chemical fiber fabrics are used for decoration. While solving the problem of clothing, we should also develop the decoration use of these fabrics, and their use as bedsheets, tourist products, packaging material, slipcovers, acrylic summer blankets, acrylic bedcovers, jacquard window blinds, screens, tablecloths, cotton-polyester bedsheets, and so forth. Furthermore, we should actively organize the export of chemical fiber fabrics. To increase our exports, we have not only to step up our investigations and forecast in the demand for chemical fiber fabrics on the international market, but also organize special plants for the production of export goods, so that we can at any time reorganize our production according to the international market demand; and continue to improve our production technology and the quality of chemical fiber raw materials and finished products. While attending to the exports, we should also suitably control the import of chemical fiber fabrics and the raw materials so . s to promote the production and sales of our own products.

(5) The quality of service should be improved to provide greater convenience to the consumers.

Because of the change in market conditions, the effects of better service on sales have become increasingly obvious. Many commercial enterprises have raised the slogan "better sales through better service" and some advanced enterprises have provided many good experiences in service improvements. These experiences can be briefly summarized as follows: (1) A system of door-to-door sales should be established at all links from wholesale to retail, and constant investigations should be conducted in the change in the consumer demands, so that more fast-selling goods can be provided. The customers should be treated with "warmth, initiative, patience and meticulous attention," and different products should be introduced to different customers. Care should be taken to sell heavily stocked goods. Wholesale departments should set up sample-display offices to facilitate the customers' choice. For customers from other localities, special personnel should be assigned to receive them, and to finalize transactions and delivery. For the mountainous areas, and the border or remote regions, a mail-order service should be instituted. At the same time, we must be sure of prompt, safe, accurate and convenient delivery to the satisfaction of the receiving (3) The retail stores should make rational arrangements for their business hours so that their stores are kept open during the "early morning, noon and evening" periods. They should display their seasonal goods for sale, increase the supply of partial shipments and semifinished goods and increase the items of service in order to suit the consumers' convenience and to increase sales. At the same time, they should pay attention to their window displays so that the consumers can see as many varieties as possible. These displays should be changed along with the changes in season so as to give an impression of freshness as an attraction to the customers.

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#### ECONOMIC MANAGEMENT

METHODS TO MAINTAIN PRICE, CURRENCY VALUE STABILITY SUGGESTED

Tiyuan JINGJI WENTI in Chinese No 9, 1982 pp 19-24

[Article by Qiao Rongzhang [0829 2837 4545]: "How To Maintain a Basic Stability in Commodity Prices and Currency Value"]

[Text] Stability in commodity prices and currency value is an important condition for socialist construction. In the past several years, financial deficits, currency inflation and devaluation in our country have led to an increase in commodity prices. This is a potential danger in our national economic life. Unless stopped in time, this trend will affect the further readjustment of our national economy and the stability of people's livelihood. Here are some of my tentative views on the characteristics of the relationship between commodity price and currency value and the factors which have affected their stability since the founding of the People's Republic, and the suggested methods to stabilize them.

I. Several Characteristics of the Relationship Between Commodity Prices and Currency Value Since the Founding of the People's Republic

The amount of currency in circulation is an important factor in price changes. Price is the monetary expression of commodity value, and the price level is determined by the commodity value and the currency value. Generally speaking, higher commodity value means high commodity price; conversely, lower commodity value means lower commodity price. When metallic currency was in circulation, higher currency value would mean lower commodity price, and lower currency value would mean higher commodity price. At present paper money is being used by all countries in the world. Paper money has no intrinsic value; it is issued by the state for compulsory circulation as a symbol of value, thus serving the function of metallic currency. Many countries in the world have now abolished the system of using paper money to represent legally a certain amount of gold. The law of paper money circulation is based on the law of metallic currency circulation.

Our renminbi has not been used to represent any amount of gold, but gold is, nevertheless, the basis of its value, because it is a symbol of gold value and plays the role of gold. Marx pointed out the law of paper money

circulation, saying "Simply stated, the issue of paper money must not exceed in amount the gold (or silver as the case may be) which would actually circulate if it were not replaced by symbols." ("Das Kapital" Vol 1 p 108, 1965 edition) The following formula is used for calculating the amount of paper money in circulation:

Amount of renminbi required for circulation in a certain period

Total amount of commodity prices

No of times the same currency circulated

If the amount of currency in circulation is less than what is actually required for the circulation of commodities, the prices may drop. If the amount of currency in circulation is excessive as far as what is actually required for commodity circulation, the prices may rise, and the currency will depreciate in value. Therefore, systematic readjustment of the amount of currency in circulation to suit the amount of commodities in circulation will enable us to accomplish the purpose of stabilizing commodity price and currency value.

In more than 30 years since the founding of the People's Republic, our work concerning prices and other monetary matters, like our other work, has had its setback. We have gained our experiences and learned our lessons, and on the whole, our achievement has been considerable. The market prices are basically stable, despite some slight rise. The general index of national retail sales in 1980 was 46.9 percent over 1950, an average increase of 1.56 percent each year. The ratio of the average annual amount of currency in circulation to the volume of retail sales was 1:7.68 in 28 years from 1953 to 1981. The procurement prices of agricultural products have been gradually increased. If 100 is used as the amount in 1950, then the amount in 1981 was 284.4, and in the same period, the general index of retail sales of industrial products in the rural areas rose by 10.8 percent, while the price difference in the exchange between industrial and agricultural products was reduced by 61 percent. Thus the peasants could obtain more than double the amount of industrial products for the same amount of agricultural products in exchange, and country fair prices have gradually approached the official prices since their reduction from 90 percent in 1976 to 48 percent in 1981.

From the relationship between commodity price and currency value after the founding of the People's Republic, we can see the following characteristics of such a relationship at our present stage of socialism:

1. If the relationship between the average amount of currency in circulation and the average volume of retail sales each year can be maintained at the ratio of approximately 1:8, it will be most helpful in the stabilization of prices. From 1953 to 1981, the ratio between the average amount of currency in circulation and the average volume of retail sales varied from 1:12.9 in the highest to the 1:5.5 in the lowest year, averaging 1:7.61. Based on the analysis of historical conditions, this ratio can generally

indicate three different conditions: (1) A 1:8.5 or high ration indicates a fairly at indant market supply, the stability of prices, the development of production and a fairly rapid improvement in people's livelihood. (2) A 1:7-1:8.5 ratio indicates a basically normal market supply, a basically stable commodity price and currency value, and relatively good living conditions for the people. (3) A ratio below 1:7 indicates currency inflation and devaluation, insufficient commodity supply, rise in commodity prices with serious effects on production, construction and people's living conditions. The present ratio in our country is 1:6.9 which is close to, or a little below the second condition, with a little too much paper money in circulation. The proportionate relationship between the amount of currency in circulation and the total volume of retail sales has something to do with the economic conditions, and can change along with the change in economic conditions. In view of the many economic sectors and channels of circulation in our country at present, a ratio between 1:7.5 and 1:8.5 should be helpful in stabilizing commodity prices and the currency value.

- 2. The amount of currency in circulation can play a regulatory role on the floating prices, negotiated prices and country fair prices. All these prices are the result of agreement between the buying and selling parties. If the amount of currency on the market is increased and the supply of commodities is short of the demand, commodity prices will rise. Conversely, if the amount of currency on the market is decreased and the supply of commodities exceeds the demand, commodity prices will fall. If the currency and the supply on the market are balanced, both the currency value and the commodity prices will be fairly stable. In 1961, for example, the amount of currency in circulation was increased by 32.34 percent over the preceding year, and the total volume of retail sales was reduced by 12.8. The ratio between them dropped from 1:8.4 to 1:5.5, and the country fair prices in 1961 were 2.2 times higher than the official prices.
- 3. The amount of currency in circulation has an important bearing on the state's planned prices. At the present stage of socialism in our country, the prices of the principal industrial and agricultural products, and charges for transportation of important cargoes and for important services are all set according to unified state standards. It means that the questions of what types of products and services are subject to change as to prices or charges, when the changes will take place, and to what extent they will be changed are all decided according to the state's price plans instead of the amount of currency in circulation. However, the amount of currency in circulation still has a close bearing on the planned prices. Sometimes, when excessive currency is in circulation and the supply of commodities is short of the demand, the state would expand the sphere of planned supply through the system of rationing, or freeze the prices of principal consumer goods.
- 4. In our country, currency devaluation is by no means entirely caused by currency inflation. In old China and the capitalist countries, currency inflation was used as a means to steal from the people. Since market

prices are determined by the amount of currency in circulation, increase in the issue of currency will bring about a corresponding rise in prices. In our country, the prices of 70 percent of the total retail sales volume are controlled by the state. Sometimes, even though the amount of currency in circulation may not be excessive, the state may still want to stimulate production and restrict consumption by raising the prices of some products in order to lower the purchasing power of money. Generally, whenever there is an imbalance between social purchasing power and the supply of commodities, the state will adopt the methods of increasing production. reducing the scale of capital construction, disposing of the goods in stock, limiting institutional purchases, controlling government expenditures, and minimizing currency issuance as a means of covering deficits to reduce the currency in circulation instead of raising prices. Prices are regulated in accordance with the amount of currency in circulation only under extraordinary conditions. For example, in the 3 difficult years from 1960 to 1962, when the currency in circulation was excessive and commodities were very scarce, it was difficult for the balance to be restored within a short time. At that time, the state was compelled to sell some commodities at high prices as a means of withdrawing some currency from circulation and restoring the balance between supply and demand.

- 5. To stabilize commodity prices and currency value, both economic and administrative means can be used, and the latter was mainly used in the past. As soon as there was any sign of increase in prices, the state would freeze the prices, enlarge the scope of rationing and reduce government expenditures and capital construction projects in order to withdraw some currency and maintain a balance between supply and demand. Practice has proved the effectiveness of these methods, because they produced the expected results every time.
- 6. Price hike and currency devaluation have a dual nature in a socialist society. To promote production, raising the procurement prices of agricultural and sideline products and readjusting the price parity for certain commodities can lead to a general increase in prices with currency devaluation as the result. But this action is necessary, reasonable and advantageous to the national economic development.
- II. The Factors in Price Hike and Currency Devaluation at Present

Stability in prices and currency value is necessary for socialist construction and is the common desire of people throughout the country. Then what are the factors involved in a price hike and currency devaluation?

1. Excessive currency is in circulation. Financial deficits in the past several years have brought about excessive issuance of a financial nature with the result that the amount of currency in circulation exceeds the actual needs for commodity circulation. In 1981, compared with 1977, the total volume of retail sales increased by 64 percent, while, in the same period, the total amount of currency in circulation increased by 70.5 percent. The ratio between the average annual amount of currency in circulation and the average annual volume of retail sales was reduced

from 1:7.2 in 1977 to 1:6.9 in 1981. At the end of 1981, the ratio was 1 for the amount of circulating currency to 5.93 for the total volume of retail sales. Calculated according to the ratio of 1:7, the amount of currency in circulation was 6.06 billion yuan over the amount required for normal commodity circulation. Again, if we calculate in accordance with the 1:8 ratio, the amount of currency in circulation in 1981 would be 4,593,000,000 yuan over the amount required for normal commodity circulation. The use of increased currency issuance as a remedy for financial deficits will inevitably lead to price hike and currency devaluation.

2. The amount of the financial subsidy by the state for controlled prices is excessive. Such subsidy is an important factor in price hike and currency devaluation. Price subsidy in our country started in 1957, when only the price of cotton was subsidized and the amount of the subsidy was 50 million yuan. Later, the prices of some agricultural sideline products and industrial raw materials were raised with little or no increase in the selling prices of finished products. In imports and exports, the international prices of some imported commodities were higher than domestic prices; and in exports, the procurement prices at home were higher than the international market prices. Thus the commercial units had to suffer loss from the abnormal difference between buying and selling prices, and this loss had to be made up by state subsidy. In recent years, in an effort to stabilize market prices and the people's livelihood, the government has continued to expand the scope of price subsidy in its financial outlay, and the amount of subsidy has continued to increase. Price subsidy is now granted to the following commodities in our country: grain and edible oil, cotton, meat, eggs, vegetables, household coal, pigskin, chemical fertilizers, insecticides; diesel oil, electricity and machinery for agricultural use; and silkworm cocoons, tung oil, and small farm tools, totaling more than 10 items. Among the export products, there are five main items with a loss because of the abnormal difference between buying and selling prices; namely, grain, cotton, sugar, chemical fertilizers and insecticides. The amount of state subsidy for this loss has continued to increase every year. If 100 is used as the bawe figure in 1965, then it was 301.6 percent in1978; 561.7 percent in 1979; 800.4 percent in 1980 and 1,232.81 percent in 1981. The figure in 1981 was increased over 1965 by 11.33 times. Because of the continued widening of the scope of price subsidy and the increase in money involved, the state's financial burden has become increasingly heavier. The proportion of price subsidy in the state's financial outlay has increased every year. In 1965, it was 1.1 percent; in 1978, 7.6 percent; in 1979, 11.5 percent; in 1980, 17.6 percent; and in 1981, 31.25 percent. Price subsidy is an important economic policy as well as price policy. Subsidy in small amounts as a temporary expedient is justifiable; however, if huge sums of money are required over a long period, financial deficits will be increased along with the increased issuance of currency, leading to a price hike and currency devaluation. A higher buying price than selling price is against the economic law. In the long run, this subsidy will become a burden to the consumers because of the need for higher prices for consumer goods.

3. The prices of agricultural products are too low. This is an old problem left over from old China. After the founding of the People's Republic, our party and government adopted the policy of gradually reducing the price difference in the exchange between industrial and agricultural products, by repeatedly raising the prices of agricultural sideline products and lowering the prices of themeans of production for agriculture. This price disparity between industrial and agricultural products has now been reduced. However, if we compare the prices of industrial and agricultural products, we can see that the prices of agricultural products are still too low. The price of agricultural products in terms of industrial products in our country is 50 percent below that in Japan. The production cost of agricultural products in our country has been increasing year after year. The average product costs for every 100 jin of early rice, wheat and maize in the country are shown in the following table:

National Average Production Cost Unit: 100 jin/yuan

| Year Product | 1965  | 1975  | 1976  | 1977  | 1978  |
|--------------|-------|-------|-------|-------|-------|
| Early rice   | 8.64  | 8.58  | 8.96  | 9.01  | 8.7   |
| Wheat        | 12.36 | 13.68 | 14.02 | 17.01 | 13.95 |
| Maize        | 8.24  | 8.9   | 9.38  | 9.37  | 8.87  |

The income of peasants in our country is very low, and the rise in labor productivity in agriculture is slower than in industry. If the price parity between industrial and agricultural products is not readjusted in time, the scissor difference will increase. Since the country presently is having financial difficulties, the prices of agricultural products cannot be adjusted in the near term, but in the long run the prices of agricultural sideline products will still have to be raised. The sales volume of agricultural and sideline products and of industrial products made of agricultural sideline raw materials account for 70 percent of the total retail sales volume. If the prices of agricultural and sideline products are increased, the market price level will naturally be higher along with currency devaluation.

4. The prices of mineral and raw material industrial products are too low. This, again, is a problem left over from old China. We have carried out certain readjustments since the founding of the People's Republic; however, because of the unstable economic situation, these readjustments were not entirely rational. According to the statistics of 1979, the average profit rate on funds for heavy industry was 10.34 percent. For iron mines, the profit rate was 1.6 percent; for coal mines, 2.1 percent; for chemical mines, 3.2 percent; and for nonferrous mines, 4.6 percent. The average profit rate on funds for the extraction and tunneling industry is far lower that for the heavy industry. In the extraction and tunneling industry, rich mines have become scarce because of the limitation of natural resources, and the tunnels have to go much deeper. Since labor productivity is low and the expenditures are heavy, production costs have continued to rise every year. According to investigations, because

of natural causes, the production cost for each ton of coal in Shanxi Province has been increased by I yuan each year, so that since the founding of the People's Republic, the production cost of coal has increased progressively by 3.5 percent every year. Compared with 1952, the production cost of coal had risen by 65 percent in 1978, and that of natural petroleum had increased by 143.1 percent. Again, in comparing 1975 with 1952, the production cost for pig iron had also increased by 8.3 percent. In reviewing our history, we can see the trend of increased production costs in the extraction and tunneling industry and the raw material industry every year. Therefore, the increase in the prices of these industrial products should be larger than in those of the processing industry. Only thus can we bring about a rational price parity between these industrial products. Increase in the prices of the products of the extraction and tunneling industry and the raw material industry will unavoidably be followed by an increase in the price of processing industrial products as well.

- 5. The depreciation rate for fixed assets is too low. Production cost is an important basis as well as the minimum limit for pricing, while basic depreciation is also an important factor in production cost. Therefore, the level of the basic depreciation rate has certain effects on prices. At present, the depreciation rate of fixed assets in our country is universally low. According to statistics by the State Statistical Bureau, the comprehensive depreciation rate for all industrial enterprises throughout the country was 3.7 percent in 1953; 3.8 percent in 1970; 4 percent in 1975; 4.1 percent in 1977; and 4.2 percent in 1980. The average basic depreciation rate in the industrial production enterprises was 4.1 percent, and the annual amount of depreciation was 1.53 billion yuan, or a monthly amount of 1,275,000,000 yuan. The average period allowed for depreciation was 24 years. The depreciation rate of our fixed assets is mainly based on their tangible wear and tear, while the intangible wear and tear is not taken into account. An unduly low depreciation rate will not be helpful to the updating of fixed assets, the adoption of new technology, the lowering of production cost or the increase of benefits. Because of rapid development of science and technology, the industrially developed countries have thought of the intangible wear and tear and reduced the depreciation time limit by raising the depreciation rate. In the United States, Japan and France, laws have been passed, urging the capitalists to raise the depreciation rate, to shorten its period and to expedite the updating of fixed assets. At present, we have financial difficulties, and a rise in the depreciation rate will reduce our revenues and lead to fluctuations in prices and currency value. However, a rise in the depreciation rate will be indispensable in the future.
- 6. The wages of some workers and staff members should also be raised. Their average annual wages were increased from 6.4 yuan in 1978 to 772 yuan in 1981, a 25.7 percent increase. Such an increased rate is appropriate in view of our present financial and economic conditions, the level of labor productivity and the rate of price increase. However, the increase is uneven, because approximately 15 percent of the workers and staff members have not had any wage readjustment for many years. The

actual income of some party and government cadres, scientific research personnel, teachers and some workers and staff members of collective enterprises has not been appreciably increased even though their bonuses are less and the commodity prices are continuing to rise. Some of them have even their income reduced. Furthermore, since commodity prices have increased every year, the actual standard of living for the workers and staff members will be lowered unless their wages are duly readjusted. Yet the increease of wages will again lead to fluctuations in commodity prices and currency value.

In addition to these factors, the rise in international prices can also lead to fluctuations in prices and currency value at home. Since we adopted the open-door policy, the effects of international market prices on our domestic prices is being increasingly felt. Some people have predicted a 10 percent international currency inflation each year which will bring a rise of approximately 1 percent in our domestic prices. In the past several years, the gradual increase in international prices has exerted increasing influence on our domestic market.

III. How To Maintain the Basic Stability of Commodity Prices and Currency Value

Because of their low income and the slow rate of its increase, our people are having difficulty in coping with the increase in prices and the devaluation of currency. In the past several years, the excessive issuance of paper money necessitated by the financial deficits have brought about the rise of commodity prices and the devaluation of currency, thus causing great difficulty to production, construction and people's livelihood. The policy to ensure the basic stability of market prices, as laid down by the fourth session of the Fifth National People's Congress, is necessary for our socialist construction and is the common desire of all people throughout the country.

Judging from our present economic conditions, we cannot expect any absolute stability in our commodity prices and currency value. However, we can strive for their basic stability. There are, in my opinion, three main indications of basic stability in commodity prices and currency value: (1) The margin of rise and fall of the general level of retail prices does not exceed 1, 2 or 3 percent, and the country fair prices are close to the official prices, or not higher by more than 40 percent. (2) The prices of the principal consumer goods, which account for 70 percent of the people's living expenses, are stable. (3) The ratio between the average amount of currency in circulation and the volume of retail sales is maintained at approximately 1:8.

To maintain the basic stability in our prices and currency value, the following tasks should be accomplished:

1. Increase easily marketable products. The main way to achieve stability in prices and currency value is to develop production. Conditions of the national economy are comprehensively reflected in

commodity prices and currency value. If the material rescurces are abundant as a result of developed production, there will be a material toundation for the stability of prices and currency value, and such stability will in turn create favorable conditions for developing production. During the First 5-Year Plan, for example, the average progressive rate of increase each year in the total industrial and agricultural output value was 10.9 percent; in the national income, 8.9 percent; in wages of workers and staff members, 7.9 percent, in the income of peasants, 5.1 percent; and in the general national index of retail sales, 1.7 percent. The ratio between the average annual amount of currency in circulation and the total volume of retail sales was 1:11.03. At that time, the proportionate relationships among the various sectors of the national economy were fairly harmonious; the market prices and currency value were stable; and people's standard of living rose fairly rapidly.

- 2. Control currency issuance. Systematic control of currency issuance according to the law of currency circulation is an important measure to stabilize commodity prices and currency value. Because of the existence of many economic sectors, many channels of circulation and many forms of integration at the present stage of socialism in our country, the ratio between the amount of currency in circulation and the volume of retail sales has undergone some changes. In the past, it was generally agreed that a 1:8 ratio was appropriate; now, people have advocated 1:7.6 as a more suitable ratio. Currency is issued under two different conditions: First, when production is developing, commodity circulation is expanding, and the prices of industrial and agricultural products as well as labor charges are being raised, the issuance of more currency is necessary. This is called economic issuance and does not bring about currency inflation. Second, the issuance is required to cover financial deficits. This is called financial issuance and is not backed up by material security. With its increase in circulation, its value will drop and commodity prices will rise. That is why currency issuance must be controlled. The key to the reduction of financial issuance lies in the balance of financial receipts and payments. There is now good potential for increasing production and curtailing expenditures in our country, and we should tap our resources and increase our financial receipts in order to obtain a balance between receipts and payments.
- 3. Strengthen administrative control. Because of the dictatorship of the proletariat, the public ownership of the means of production and the planned economy, it is possible for the state to exercise direct control over market prices and currency value with administrative means. Since the founding of the People's Republic, we have set up price and monetary control organs in the governments, enterprises and institutions at various levels, formulated a series of control systems and trained a large number of control personnel. Thus, organizationally, the implementation of price and monetary policies is ensured. Practice has proved that whenever the supply of commodities falls short of the demand, and the amount of currency in circulation is exceeds normal requirements, the temporary freezing of prices would be an effective measure to stabilize prices and currency value. Because of financial difficulties in our country at

present, and in the near future, and because of the shortage of commodity supply in relation to demand, the control of prices and currency value using economic means has been very much hampered; and this is why for some time to come, administrative control has to be mainly used.

Administrative control can take many forms. For example, under extraordinary circumstances, the commodity prices are temporarily frozen; the scope of planned supply is widened and the quantities of supply are increased in order to stabilize the prices and bring about a balance between supply and demand; financial subsidy is granted for low prices; and the prices of important industrial and agricultural products and the scales of labor service charges are all based on the state's unified standards. Proper use of these administrative means will not only promote production but also help attain the goal of stabilizing prices and currency value.

Planned price control is the principal form of administrative control. In price control, planned prices should play the main role, while the other forms of prices, which are more flexible, can only serve as a supplement to planned prices. Bringing into play the main role of planned prices means that the prices of the important industrial and agricultural products and the scale of charges for the transportation of important cargoes and for important labor services must be set and readjusted by the state; and that, without state approval, no unit or individual has the right to change them. The proceeds from the sales at fixed and floating planned prices should form 70 percent of the total sales proceeds. In this way, we will be able to ensure the basic stability of market prices and currency value and avoid large fluctuations.

4. Reduce price subsidy from the state. State subsidy for prices is not only used by our country; the same method is being used by many countries in the world. Price subsidy has a dual nature. On the one hand, it is simple and easy, and can produce quick results in stabilizing market prices, currency value and people's livelihood. On the other hand, the use of price subsidy as a means of stabilizing market prices and currency value is inconsistent with the law of value, because the prices cannot comprehensively reflect the value; and by concealing the actual production costs of the subsidized products and their price parity, it may encourage waste, protect the backward and increase the government's financial burden. To stabilize market prices, currency value and people's livelihood and to promote production, it may be permissible to use price subsidy under certain extraordinary circumstances. However, the scope should not be too wide and the amounts involved should not be too large. In view of the present economic conditions in our country, the focus of the price subsidy should be on the necessities in people's daily life, and the amount of subsidy should be held at 15 billion yuan, or approximately 15 percent of the total financial outlay. As to what to do in the future, I believe that (1) price subsidies should be given, but not indiscriminately, and that the subsidized prices now should be reviewed; (2) the scope of subsidizing should not be thoughtlessly enlarged to including certain prices not yet subsidized, while those prices being subsidized should not be excluded without due consideration; (3) the methods of subsidizing

should be improved, such as through the systems of responsibility for k-eping losses below a certain level, quota subsidy and sharing of savings; and (4) price subsidies should be granted to the production units. At present, a price subsidy is basically intended to benefit the commercial units and the individual consumers. This method costs money and time. It is suggested that the subsidy be given directly to the production units so that the prices of their products will not be further raised. This method should be more effective in promoting production. If the price subsidy is reduced, the financial outlay will also be reduced along with the reduction in currency issuance. Commodity prices and currency value will then be stabilized.

5. Set up a rational price structure. Generally speaking, price structure consists of the price level of industrial and agricultural products, the price parity and the price difference. A rational price structure is conducive to production development and stability in people's livelihood. Provided the stability of prices and currency value is left undisturbed, the necessary readjustment of prices should be helpful in developing production and improving the people's living conditions.

Agricultural and sideline products and industrial products using agricultural and sideline products as raw materials account for approximately 70 percent of the total volume of retail sales. To stabilize the market prices and currency value, we should first stabilize the procurement prices of agricultural and sideline products. At present, the prices of many such products are still very low. However, they should not be further raised in the near future in view of our financial difficulty.

The present prices of our industrial products are irrational, because of the high profits for the processing industry and the low profits, or even losses, for the raw material industry. Unless the prices of raw materials are raised, it will be difficult for the raw material industry to survive or to develop. However, the increase in the prices of raw material industrial products will produce a chain reaction, because it will also increase the production costs of processing the industrial products. To speed up the development of the raw material industry and yet maintain the basic stability of market prices and currency value, it is suggested that the income from increased prices approved by the state be used as a direct subsidy to the production units so that their factory prices will not be raised for the time being. This method is simple and does not add to the state's expenditure.

Increases in the prices of consumer goods should be considered in combination with the increase in wages for the workers and staff members. The method of subsidizing them after raising the prices of consumer goods is unsattisfactory since it costs time and money and is therefore uneconomical. In the tuture, would it be possible for the income from increased prices to be used to subsidize the production or commercial units instead of individuals, so that there will be no further change in the prices of consumer goods for some time? By this means, we will politically maintain the initiative without increasing the state's expenditures.

If the price structure is irrational, an overall readjustment is urgently needed. However, since our financial and economic situations have not yet taken a basic turn for the better and economic conditions are not favorable, it may be necessary for us to carry out the readjustment in two different stages: First, if some prices are irrational or urgently need to be increased, we should temporarily postpone the increase and use the money, which might otherwise be gained from the increase, to subsidize the production of commercial units, so that these units can continue their economic activities. Second, an overall readjustment should be carried out on the structure of prices. There should be concrete material conditions as well as a scientific theoretical basis for such a reajustment which should be considered in conjunction with workers' wages, the tax policy, bank interests, the sharing of enterprise profits, and the interests of all parties concerned.

In short, we should, on the one hand, maintain the basic stability in market prices and currency value, and, on the other hand, enable the people to settle down in their daily life, and enliven the socialist economy in order to attain the goal of flexibility without disorder.

(The unit to which the author of this article belongs: State General Administration of Prices.)

9411

CSo: 4006/151

#### BRIEFS

HENAN SUBSCRIPTION FOR BONDS—The central authorities allocated national treasury bonds of 161.3 million yuan for subscription in Henan Province in 1982. By the middle of December, the province had subscribed for national treasury bonds amounting to 171.5 million yuan, which was 106.3 percent of the quota allocated by the state. According to incomplete statistics, some 12,000 people bought national treasury bonds of over 100 yuan each and 98 people bought bonds of over 1,000 yuan each. [Zhengzhou Henan Provincial Service in Mandarin 1100 GMT 31 Dec 82]

STATE TREASURY BOND ALLOCATION--In 1983, the municipal people's government will continue the sales of state treasury bonds to urban and rural people and all units across the municipality. In 1983, the state will allot treasury bonds worth 99.1 million yuan to our municipality, the same amount as in 1982. However, the amount of state treasury bonds purchased by urban and rural people will increase slightly and that purchased by units will show a slight decrease. It is estimated that the task for the sales of state treasury bonds will be fulfilled by the end of the first quarter of 1983 and then the funds will be banded over to the state. The task will be prefulfilled 3 months earlier than in 1982. [Text] [SK110703 Tianjin TIANJIN RIBAO in Chinese 19 Dec 82 p 1]

CSO: 4006/190

INDUSTRY

#### POWER INCREASE PROMOTES METALLURGICAL INDUSTRY

HK130739 Guiyang Guizhou Provincial Service in Mandarin 1100 GMT 12 Jan 83

[Text] The development of our province's power industry has given rise to an all-round boom in our metallurgical industry. In 1982, our province's aluminium output jumped to occupy the first place in our country. The output of electric manganese alloy which had already been first in the country rose sharply again.

Our province abounds with aluminium, manganese and other mineral resources with fine quality, which are of great importance in our country. However, the shortage of power production in the past hindered the development of our province's metallurgical industry. At the end of 1981 and 1982, the No 2 and 3 generators of the large-scale Wujiangdu hydraulic station respectively went into operation. Moreover, because of the sufficient rainfall last year, the broad ranks of staff and workers of the power production grasped the good opportunity to generate more hydraulic power. As a result, they began to ease the shortage of power upply in our province and at last gave rise to an abundant supply of electric power. Last year, the total power output of our province's power network reached more than 5.1 billion KWH, 1.4 billion KWH [more] than that of the year before. On this basis, the provincial power network supplied 700 million KWH more power for metallurgical production in 1982 than the year before. This enabled the 80,000 ton electric aluminium production project in the Guizhou aluminium refinery to smoothly go into test operation and pushed the annual aluminium output up by more than 70 percent seizing the first place in the nation.

In 1982, the enterprises that produced electric manganese alloy began to go into full load operation and thus raised their output nearly 50 percent over the previous high. The metallurgical industry achieved an all-round increase. The total output value increased by 48.5 percent over the year before. Compared with the highest historical record, the profit and output value in 1982 respectively increased by 13 and 14 percent.

CSO: 4006/190

INDUSTRY

NUCLEAR INDUSTRIES' PLANT 404 GETS HIGH MARKS FOR EFFICIENCY, CONSERVATION

Lanzhou GANSU RIBAO in Chinese 3 Nov 82 p 2

[Article: "State Plant 404 Thoroughly Utilizes Potential, Achieves High Economic Effectiveness"]

[Text] Plant 404 was among China's first group of nuclear industry bases. For more than 20 years it has made a positive contribution to the development of China's nuclear production technology and national defense modernization. In 1979 the plant was selected as one of the most advanced enterprises nationwide. Since 1980, it has fulfilled every aspect of the state plan every year and has had an average annual growth rate of 3.1 percent; in 1981 it overfulfilled its contracted profits target by 171.23 percent, and the proportion of products passing final pre-shipment inspections has consistently been 100 percent. These circumstances constitute a great step forward in improving economic effectiveness.

Thoroughly Utilizing Potential, Requiring That Production Technology Be Effective

This plant accords full importance to utilization of science and technology. While completing its state plan assignments with assured quality and quantity, the plant energetically develops and produces isotope products which directly serve the national economy and the people's daily lives. Some 27 products or experimental products were exhibited at the state isotope trade exhibition; five new varieties were added this year, and total sales have exceeded 1 million yuan.

This plant also treats modernization and research as important means of increasing overall economic effectiveness. Since the plant was built it has carried out more than 3,200 research and modernization projects, 37 of which have won prizes at national scientific conferences, and 6 of which are near or at the highest world levels. A certain process line built by the plant gives better product quality than the initial process, with greater density and with a production cycle half as long, while the number operating personnel can be decreased by two-thirds and the product acceptance rate can be as high as 98 percent. This plant's waste recovery project yields a total metal recovery rate as high as 99.66 percent, and the value of the metals recovered from wastes alone is 15.6 million yuan.

In production, the plant also uses economically rational transport methods, conducts energy consumption analyses and makes major efforts in energy conservation. In 1980 and 1981 the plant saved a total of 28 million kilowatt-hours of electricity, more than 50 billion kilocalories of heat, and more than 240 tons of end-product oil; in both years it was rated one of the top energy-conserving enterprises nationwide.

Strengthening Basic Work and Carrying on Scientific Management

The plant carried out a complete reshuffling and comprehensive shakeup related to improvement of economic effectiveness. It started with a reorganization of the leadership group, selecting vigorous older comrades for the overall tasks of running the plant, so that the top plant leadership group's average age decreased to 54.5 years, 46 percent of the top leaders had a university education and 46 percent were engineers, accountants or advanced engineers. In accordance with the principle of collective guidance by the party, democratic management by the employees and administrative leadership by the plant director, a healthy leadership system was established and attention was devoted to strengthening the production command system and the functional sections and offices, in addition to which an effort was made to achieve flexibility of leadership, rapidity of action and high efficiency. The plant also reformulated the responsibilities of all categories of personnel in terms of five considerations, i.e. job requirements, basic duties, work procedures, evaluation standards, and reward and penalty procedures, as well as redefining the responsibilities of units and departments; it gradually associated duties, and economic and technical indicators with the job responsibilities of the personnel in question and took account of vertical and horizontal integration so that both types functioned smoothly and cooperatively.

In internal economic accounting, emphasis was placed on management of various economic and technical indicators and on properly breaking them down, handing down targets to the lower levels and assigning responsibility for achievement, so that a rather complete plant-wide system of indicators and a level-by-level organizational system of offices responsible for keeping account of them was gradually established. The plant now primarily uses two economic responsibility systems: internal economic accounting and the method of breaking down indicators and computing bonuses on the basis of work points. It has brought about a situation in which economic responsibility is almost always associated with economic benefit and those whose economic performance is best gain the most economic benefits, which stimulates and units to strive for effective management, increase receipts and save on expenditures.

Emphasizing Improvement of the Quality of All Personnel and Development of Intellectual Resources

In the last few years the first-generation older employees involved in the nuclear industry left or retired and new personnel continuously joined the enterprise, so that the political and technical qualities of the personnel underwent rather large changes. Plant organizations at all levels took various steps in an effort to improve the quality of all personnel. They studied the new circumstances and new characteristics, took account of the actual employee

system, adhered strictly to directives on paving the way for greater effectiveness, and firmly inculcated in the personnel a love of the Northwest region and a spirit of contributing to the nuclear industry. Education consistently focused on younger workers, and more than 80 percent of them have received training. Comprehensive personnel training gradually was standardized. In 1981 total enrollment in training classes had reached more than 6,000, 129 percent of the training plan figure, so that the plant was recognized by the provincial office of the national defense industry as an advanced unit in employee education.

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CSO: 4013/71

INDUSTRY

TECHNICAL, ECONOMIC INDICES OF SMALL-SCALE CEMENT PRODUCTION SURVEYED

Beijing SHUINI in Chinese No 10, 1982 pp 19-21

[Article by Preparatory Department of China Cement Industry Company: "A Survey of Technical and Economic Indices of Cement Production by Small Factories in the Country in 1981"]

[Text] Based on a general survey on the quality of cement produced by small cement factories in all the provinces, municipalities and autonomous regions in the country, we compiled a set of statistics on the main technical and economic indices of 2,469 enterprises and the quality of products in 2,753 enterprises in 1981.

The 2,469 enterprises included in these statistics produced 49,607,000 tons of cement in 1981. Compared with 1980, their average scope of operation was increased from 18,600 tons to 20,100 tons, or by 8.08 percent; the number of enterprises incurring losses was reduced from 24.69 percent to 23.74 percent, a 0.95 percent reduction; the amount of profit for each ton of cement was increased from 4.76 yuan to 5.06 yuan, a 6.3 percent increase; the proportion of up-to-standard cement sold was increased from 85.13 percent to 88.59 percent, and that of No 425 cement was increased from 28.19 percent to 31.43 percent. The number of factories whose products were 100 percent up to standard was increased from 314 to 458. All these achievements were attributed to the readjustment and the strengthened management of enterprises, the tapping of their resources, and the renovation and transformation of their equipment. However, if we compare the technical and economic incide of 1981 with those of 1980, we will see that the consumption of standard coal in the production of clinkers was increased from 184.69 kilogram/ton to 189.09 kilogram/ton; the comprehensive consumption of standard coal in the production of cement was increased from 165.65 kilogram/ton to 171.05 kilogram/ton; and the comprehensive consumption of electricity in the production of cement was increased from 96.58 kWh/ton to 99.72 kWh/ton. The per-unit production cost and selling price were also increased from 51.48 yuan/ton and 62.34 yuan/ton to 54.51 yuan/ton and 64.12 yuan/ton respectively. Since all the consumption indices were raised, the production cost and selling price were also increased to a certain extent. This situation should attract our attention, because it reflects certain problems in the business and technical management of the enterprises. We must further strengthen our

work in these respects in the future, with particular attention to the basic work of evaluation and measurement; continue to improve enterprise management and further increase small factories' output of cement.

The main technical and economic indices, the conditions of quality, and the advanced indices in the country are shown in Tables 1, 2 and 3.

Table 1. Technical and Economic Indices of Cement Produced by Small Factories of Advanced Levels

|                     |                                  |   |  | 济指标先                            | 进水                          | 平                            |  |  | 表 1  |
|---------------------|----------------------------------|---|--|---------------------------------|-----------------------------|------------------------------|--|--|--|
| 2 /2 3              | \$ 41.45                         | 4 325以水江州行代   | 8.   | 6 水池粉色                          | 他在                          |                              | 8 41   | i i w i  |  |
| 1 1416              |                                  | 5 ( ) 142 .   |  | 7 (红/)                          | ž) 3                        | 2                            | 9 (4   | 17/46)   |  |
|                     |                                  |   | 28.12  | 广东南部州特好                         |                             |                              | 云南易门水沿广  | 47   | 106.00   |
| 10年的先生水平            | 16                               | 山东济南太に「   | 28.21  | 点州和宁水江厂                         | 33                          | 64.00                        | 安徽电西水沿厂  | 48   | 110.00   |
|                     | 17                               | N化红旗水门厂   | 29.60  | 经当相多县水市                         | <b>F34</b>                  | 66.30                        | 广西茶城县水江  | 49   | 113.00   |
|                     | 18                               | 武汉市水北厂  | 29.62  |                                 |                             |                              |  |  |  |
|                     | 19                               | 2中许于新生水阳厂   | 28.12  | 广东武名太江广                         | 35                          | 74.00                        | 江苏河山县水潭  | 50   | 121.90   |
| 8.8万吨以上页面。          | £ 4 20                           | 自东连南水泥厂   | 28.21  | 广东新华水门广                         | 36                          | 76.00                        |  |  | 131.60   |
| 先进水平                | 211                              | <b>非红旗水泥厂</b>   | 29.62  | 广西北统县水江                         | 37                          | 76.30                        |  | -  | 124.40   |
|                     | 22                               | 武汉。江水泥厂   | 29.62  |                                 |                             |                              |  |  |  |
| 4.4~8.8万吨立富         | 企业 2                             | 全大连位并石灰石矿<br>3 水花厂  | 31.44  | 广东番禺水卍厂                         | 38                          | 68.00                        | 江苏武进建村厂  | 53   | 121.00   |
|                     | 24 [                             | い。これない「   | 33.61  | 山东牟平县水泥                         | <b>一39</b>                  | 71.00                        | 湖南零陵地区水  | er 5 4   | 123.00   |
|                     |                                  |   | 37.49  |                                 |                             |                              | 湖南部东县太阳  | 5 <b>5</b>   | 120.50   |
| 1 ~ 4. 4 Tiet iv to | 26                               | に大台外木だ厂   | 36.70  | 广东南海州钓好。                        | 水41                         | 63.00                        | 云南易门水泥厂  | 56   | 106.00   |
|                     | 27                               | [北八安][广石水][广  | 37.46  |                                 |                             |                              |  |  | 110.00   |
| 先達水平                | 28 #                             | 证老虎山水肥厂   | 38.65  |                                 |                             |                              |  |  |  |
| Charles & All       | 29 ii                            | (苏宜兴水记)   | 37.50  | 上海宝山水汇厂                         | 44                          | 72.40                        | 浙江杭州水积厂  | 59   | 177.96   |
|                     |                                  |   |  |                                 |                             |                              |  |  |  |
| 先进士官                |                                  |   |  |                                 |                             |                              |  |  |  |
|                     | 1 〇 年 元 元 章 水平<br>8.8万 明 5 上 次 3 | 15 i 10 *** 元 ** ** * 16 i 17 i 18 19 i 8.8万 · 以上立公企业20 先进水平 21 i 22 1.4~8.8万地立窑企业 2 1.4~8.80世立窑企业 2 1.4~8.80 | 2 「名 3 指标 4 325 号末 2 中午代 5 6 7 2 2 2 2 2 2 3 4 2 2 2 3 4 2 2 2 3 4 2 2 2 3 4 2 2 2 3 4 2 2 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 3 3 4 3 3 3 4 3 3 4 3 3 3 3 | 2 厅名 3 指标 4 325 号录记 中行代 1 28.12 | 2 厅名 3 11.44 4 325 15 未 2 1 | 2 「名 3 指示 4 325 以表 2 中 1 代 2 | 16 江中野子和生生品 28.12 广东南南州特野水泥厂 63.00 10 下記光度水平 16 山东港南水沿厂 29.62 出土 自州南中水沢厂 33 64.00 17 河北虹鉄水沢厂 29.62 出土 自州南中水沢厂 34 66.30 18 武汉市水沢厂 29.62 出土 自州南中水沢厂 35 74.00 29.62 19 江中野子和生水泥厂 28.12 广东海华水沢厂 36 76.00 火进水平 21 湖北虹鉄水泥厂 29.62 广河北佐县水沢厂 36 76.00 火进水平 21 湖北虹鉄水泥厂 29.62 广河北佐县水沢厂 37 76.80 22 武汉 J水泥厂 29.62 广河北佐县水沢厂 37 76.80 22 武汉 J水泥厂 33.61 山东牟平县水泥厂 38 68.00 2.5 江中建西水泥厂 37.49 广西玉林水沢厂 40 71.00 2.5 辽中建西水泥厂 37.49 广西玉林水沢厂 40 71.00 4.4 万吨 公司 37.46 黄州南宁水泥厂 42 64.00 先进水平 28 新江老虎山水泥厂 38.65 河北柏乡县水泥厂 42 64.00 28 新江老虎山水泥厂 38.65 河北柏乡县水泥厂 43 66.30 河北南水泥厂 29 江苏宜兴水沢厂 37.50 上海宝山水泥厂 4.4 72.40 30 湖南辰原水江厂 37.50 上海宝山水泥厂 4.4 72.40 30 湖南辰原水江厂 37.77 上海川沙水泥厂 4.5 76.00 | 2 「名 3 指示 4 325以水で中です。 6 水で综合电で 8 単位 5 (1/20) 7 (度/地) 32 9 (公 32 15 江中野子新生水に 28.12 戸糸南南州野野水に 63.00 云南馬門水に 1 0 下原木東本平 1 6 山东港南水に 29.62 東田南水に 3 5 64.00 安観电西水に 1 7 別単虹鉄水に 29.62 東田南水に 3 5 74.00 江苏田山田水に 1 8 武政市水に 29.62 戸京新生水で 3 6 76.00 江苏田山田水に 29.62 戸田北西日水に 3 6 76.00 江苏田田水に 22 武文 水配に 29.62 戸田北西日水に 3 7 76.80 戸本田美水に 22 武文 水配に 29.62 戸田北西日水に 3 7 76.80 戸本田美水に 2 3 水配に 29.62 戸田北西日水に 3 7 76.80 戸本田美水に 2 3 水配に 29.62 戸田北西日水に 3 7 76.80 戸本田美水に 3 7 76.80 戸本田美田大田 2 7 河北町東田市水に 3 7 76.80 戸本田青田大田 2 7 河北町東田木に 3 7 76.80 戸本田青田木に 3 7 76.80 戸田美雄田水に 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | 2 「名 3 北京 4 325以来で作ってい 5 で 1 2 2 5 で 1 2 2 5 で 1 2 2 5 で 1 2 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 |

Key:

- 1. Scope of operation
- 2. Factory names
- 3. Indices
- 4. Per-unit production cost of No 325 cement
- 5. (yuan/ton)
- Comprehensive electricity consumption in production of cement
- 7. (kWh/ton)
- 8. Consumption of standard coal in clinker production
- 9. (kilogram/ton)
- 10. National advanced level
- 11. Advanced level of enterprises with vertical kilns and operating scopes of more than 88,000 tons

(Key continued from previous page)

- 12. Advanced level of enterprises with vertical kilns and operating scopes of 44,000-88,000 tons
- 13. Advanced level of enterprises with vertical kilns and operating scope of 10,000-44,000 tons
- 14. Advanced level of enterprises with small rotary kilns
- 15. Huazi Xinsheng Cement Factory of Liaoning Province
- 16. Jinan Cement Factory of Shandong Province
- 17. Hongqi Cement Factory of Hubei Province
- 18. Wuhan Cement Factory of Hubei Province
- 19. Huazi Xinsheng Cement Factory of Liaoning Province
- 20. Jinan Cement Factory of Shandong Province
- 21. Hongqi Cement Factory of Hubei Province
- 22. Wuhan Cement Factory of Hubei Province
- 23. Cement Factory of Ganjing Limestone Mine of Dalian, Liaoning Province
- 24. Xunchang Cement Factory of Sichuan Province
- 25. Jianxin Cement Factory of Liaoning Province
- 26. Daye County Cement Factory of Hubei Province
- 27. Baishi Cement Factory of Wuan County, Hebei Province
- 28. Laohushan Cement Factory of Zhejiang Province
- 29. Yixing Cement Factory of Jiangsu Province
- 30. Chenxi Cement Factory of Hunan Province
- 31. Chengde Municipal Cement Factory of Hebei Province
- 32. Haizhou Changhao Cement Factory of Guangdong Province
- 33. Zhenning Cement Factory of Guizhou Province
- 34. Baixiang County Cement Factory of Hebei Province
- 35. Maoming Cement Factory of Guangdong Province
- 36. Xinhua Cement Factory of Guangdong Province
- Beiliu County Cement Factory of Guangxi Autonomous Region
- 38. Panyu Cement Factory of Guangdong Province
- 39. Mouping County Cement Factory of Shandong Province
- 40. Yulin Cement Factory of Guangxi Autonomous Region
- 41. Haizhou Changhao Cement Factory of Guangdong Province
- 42. Zhenning Cement Factory of Guizhou Province
- 43. Baixiang Cement Factory of Hebei Province
- 44. Baoshan Cement Factory of Shanghai
- 45. Chuansha Cement Factory of Shanghai
- 46. Zhakou Cement Factory of Shanghai
- 47. Yimen Cement Factory of Yunnan Province
- 48. Tunxi Cement Factory of Anhui Province
- Chacheng County Cement Factory of Guanxi Autonomous Region
- 50. Tongshan County Cement Factory of Jiangsu Province
- 51. Yangzhou Municipal Cement Factory of Jiangsu Province
- 52. Shaoguan Cement Factory of Guangdong Province
- 53. Wijin Building Materials Factory of Jiangsu Province

- 54. Lingling Prefectural Cement Factory of Hunan Province
- 55. Qidong County Cement Factory of Hunan Province
- 56. Yimen Cement Factory of Yunnan Province
- 57. Tunxi Cement Factory of Anhui Province
- 58. Chacheng County Cement Factory of Gungxi Autonomous Region

Table 2. Quality Survey of Cement Produced by Small Factories in 1981

|                                       |                       | 8                      | 1               | 2     | 8             | •                       | 24                 | 00                                    | <b>က</b><br>မ    |                  | OZ.                   | 23      |                      | 28  | 50             | 30  |
|---------------------------------------|-----------------------|------------------------|-----------------|-------|---------------|-------------------------|--------------------|---------------------------------------|------------------|------------------|-----------------------|---------|----------------------|---|----------------|---|
|                                       | i d                   | 21.48885<br>31.438     | (3745)<br>13 to | € ₩   | \$ w≠<br>\$ % | 33<br>33<br>5<br>5<br>5 | 不合格<br>品比例<br>(55) | 15   15   15   15   15   15   15   15 | 35.134<br>57.001 | 225.44<br>225.55 | ் (2) 375 (3) 325 (3) | 6.481E@ | (%)<br>327<br>235(5) | \$ 12<br>12<br>13<br>14<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15 | 指广大路<br>[18]红号 |   |
| # # # # # # # # # # # # # # # # # # # | 5023.69               | 5025.69 (752.73 272.96 | 272.96          | 88.62 | 90.79         | 50.82                   | 6.08               | 5.30                                  | 80<br>           | 0.61             | 3.91                  | 64.29   | 31.19                | 96+   | 33.4           | 675<br>673                                |
| 3 厅业内企业                               | 1912.17               | 3932.37 3874.49 57.88  | 57.88           | 90.19 | 90.80         | 69.44                   | 1.78               | 1.73                                  | 372              | 10.0             | 3.09                  | 64.81   | 31.56                | 495   | 30.5           | 1° 30 00 00 00 00 00 00 00 00 00 00 00 00 |
| 4 污业外企业                               | 739.18                | 739.18 686.59 52.59    | 52.59           | 88.73 | 91.61         | 51.74                   | 5.13               | 6.14                                  | 60               | 0.73             | 4.22                  | 59.54   | 35.49                | 503   | 80<br>10<br>80 | 6.  |
| 5 平 5 企 表                             | 354.14                | 354.14 191.65 162.49   | 162.49          | 67.36 | 87.45         | 11.11                   | 22.53              | 9.92                                  | 22               | 1.53             | 10.03                 | 71.31   | 8.11                 | 210   | 322            | 5.03                                      |
| 5 公客企业总计                              | 4513.30               | 4513.30 4240.34 272.96 | 272.96          | 87.79 | 90.21         | 50.82                   | 6.40               | 5.81                                  | 120              | 0.69             | 4.29                  | 62.39   | 27.63                | 185   | 350            | 2635                                      |
| 7次高企业中行业内企业 3595.16 3537.28 57.88     | 3595.16               | 3537.28                | 57.88           | 89.93 | 90.32         | 69.41                   | 16.1               | 5.13                                  | 350              | 0.59             | 3.29                  | 67.34   | 28.78                | 181   | 352            | 1691                                      |
| 8 北部企业中行业外企业                          |                       | 570.27 517.68 52.59    | 52.59           | 86.83 | 90.48         | 51.07                   | 5.61               | 7.54                                  | 54               | 0.99             | o. 48                 | 65.65   | 27.88                | 487   | 319            | 333                                       |
| 9.立在企业中社员企业                           | 347.87                | 347.87 185.38 162.49   | 162.49          | 67.11 | 87.27         | 41.11                   | 22.80              | 10.09                                 | 27               | 1.58             | 19.61                 | 73.45   | 5.30                 | 116   | 319            | C.  |
| 10 旅店企业总计                             | 511.39                | 511.39                 |                 | 95.61 | 95.61         |                         | 3.62               | 0.77                                  | 86               | 0.03             | 0.71                  | 37.75   | 61.52                | 556   | 386            | 111                                       |
| 11 羧醇企业中行业内企业                         | 336.21 336.21         | 336.21                 |                 | 95.93 | 95.93         |                         | 3.60               | 0.17                                  | 22               | 0.00             | 0.87                  | 36.60   | 64.50                | 571   | 396            | 72  |
| 12 旋高企业中行业外企业                         | 168.91                | 168.91                 |                 | 95.07 | 95.07         |                         | 3.53               | 1.40                                  | 16               |                  | 0.42                  | 41.10   | 58.48                | 32.5  | 383            | =   |
| 1.7 复名企业中社队企业                         | 6.27                  | 6.27                   |                 | 92.66 | 95.66         |                         | 7.34               |                                       |                  |                  |                       | 8.95    | 91.05                | 8830  | 116            | -   |
| 14 立名企业规模                             |                       |                        |                 |       |               |                         |                    |                                       |                  |                  |                       |         |                      |   |                |   |
| 15 30万吨以上立辖企业                         | 120.27                | 120.27                 |                 | 99.88 | 99.88         |                         |                    | 0.12                                  | 9                |                  |                       | 62.97   | 37.03                | 533   | 362            | -   |
| 16 20~30万吨立套企业                        | 142.05                | 142.05                 |                 | 99.70 | 99.70         |                         | 0.14               | 0.16                                  | •                |                  |                       | 67.65   | 32.35                | 887   | 357            | 9   |
| 17 10~20万吨立名企业                        | 561.60                | 561.60                 |                 | 97.99 | 97.99         |                         | 1.27               | 0.74                                  | 27               |                  | 0.10                  | 57.45   | 42.45                | 526   | 367            | =   |
| 18 8.8~10万吨立富企业                       | 541.90                | 541.90                 |                 | 93.88 | 93.88         |                         | 3.72               | 2.10                                  | 23               | 80.0             | 2.71                  | 70.95   | 26.26                | 495   | 350            | 7.8                                       |
| 9 4.1~8.8万吨立在企业                       | 1050.35 1050.35       | 1050.35                |                 | 92.88 | 12.88         |                         | 3.15               | 3.97                                  | 12               | 0.92             | 2.24                  | 67.50   | 29.34                | 167   | 352            | 263                                       |
| 20 1~4.1万吨立窑企业                        | 1548.58 1486.37 62.20 | 1486.37                | 62.20           | 84.46 | 85.73         | 34.05                   | 8.14               | 7.10                                  | 161              | 0.59             | 6.52                  | 71.21   | 21.70                | 69)   | 343            | 016                                       |
| 21 万柱以下立在企业                           | 548.55                | 548.55 337.79 210.76   | 210.76          | 65.24 |               |                         |                    |                                       |                  |                  |                       |         |                      |   |                |   |

# Key [Table 2]:

- 1. National total
- 2. Including
- 3. Enterprises in cement trade
- 4. Enterprises not in cement trade
- 5. Enterprises run by communes and production brigades
- 6. Total amount of enterprises with vertical kilns
- 7. Enterprises in cement trade with vertical kilns
- 8. Enterprises not in cement trade with vertical kilns
- Enterprises with vertical kilns run by communes and production brigades
- 10. Total amount of enterprises with rotary kilns
- 11. Enterprises in cement trade with rotary kilns
- 12. Enterprises not in cement trade with rotary kilns
- 13. Enterprises with rotary kilns run by communes and production brigades
- 14. Scope of operation of enterprises with vertical kilns
- 15. Enterprises with vertical kilns producing more than 300,000 tons
- 16. Enterprises with vertical kilns producing 200,000-300,000 tons
- 17. Enterprises with vertical kilns producing 100,000-200,000 tons
- 18. Enterprises with vertical kilns producing 88,000-100,000 tons
- 19. Enterprises with vertical kilns producing 44,000-88,000 tons
- 20. Enterprises with vertical kilns producing 10,000-44,000 tons
- 21. Enterprises with vertical kilns producing less than 10,000 tons
- 22. Amount of cement sold (in 10,000 tons)
- 23. Proportion of up-to-standard product (in percentage)
- 24. Proportion of substandard product (in percentage)
- 25. Proportion of reject (in percentage)
- 26. Number of factories selling 100 percent up-to-standard cement
- 27. Proportions of various grade numbers in up-to-standard product
- 28. Average grade number of clinkers
- 29. Average grade number of cement sold
- 30. Number of factories included in statistics
- 31. Total
- 32. Inspected
- 33. Not inspected
- 34. No 225
- 35. No 275
- 36. No 325
- 37. No 425

Table 3. Technical and Economic Indices of Cement Produced by Small Factories in 1981

| 200                                   | 00          | (S)                    |   | 31                       |        | 32   | 33                                       | 34     |                                | 35      |  |        |       | 36   |
|---------------------------------------|-------------|------------------------|---|--------------------------|--------|--|--|--------|--------------------------------|---------|--|--------|-------|------|
| 5. a. m ds 17                         | (万里) (万     | Mr. F. B.              | A 25 | 25 大台<br>西部<br>10 年 10 日 | では他には、 | での主義・大記事位でおり<br>きがすご 成 本<br>古 成 本<br>(報/人・年)・三・二、(年/年) | 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2 | 1000   |                                |         | 10000000000000000000000000000000000000 | 100000 | 1 19  | 28 - |
| · · · · · · · · · · · · · · · · · · · | 4960.79     | 4960.79 3587.14 187.09 | -                                       | 171.05                   | 8.72   | 81.08  | 18.81                                    | 64.12  | 64.12 30278.36 5179.5425098.82 | 5179.54 | 25098.82                               | \$35   | 23.74 | 2469 |
| 日本的企业平均指证                             | 3961.43 287 | 2878.69                | 8.69 185.13                             | 169.01                   | 16.46  | 81.42  | \$4.00                                   | 63.68  | 23152.70 3928.31 19224.39      | 3928.31 | 19224.39                               | 124    | 25.47 | 1709 |
| 4 行业外企业中的指证                           | 729.86      | \$17.79                | 196.67                                  | 175.46                   | 103.23 | 75.18  | 56.47                                    | 64.70  | 4257.50                        | 1226.10 | 3031.40                                | -      | 27.83 | 369  |
| 5 经联合业务均值的                            | 269.50      | 190.66                 | 190.32                                  | 180.71                   | 102.33 | 58.57  | \$6.95                                   | 89.03  | 2658.06                        | 25.13   | 2632.93                                | 39     | 11.40 | 391  |
| <b>后之数企业中均指示</b>                      | 4446.07     | 3222.20                | 177.25                                  | 163.74                   | 98.41  | 10.18  | 53.86                                    | 63.76  | 27649.75                       | 4470.79 | 4470.7923178.99                        | 527    | 23.71 | 2319 |
|                                       | 3615.71     | 2633.15                | 176.57                                  | 162.44                   | 97.62  | 94.86  | \$3.37                                   | 63.23  | 21354.98                       | 3477.20 | 3477.20,17877.78                       | 807    | 25.64 | 1631 |
|                                       | 567.14      | 102.86                 | 178.28                                  |                          | 161.86 | 72.50  | 55.88                                    | 64.79  | 3500.40                        | 968.46  | 968.46 2531.94                         | 0.8    | 27.49 | 331  |
| のいちのものなり、一般などの                        | 263.22      | 186.19                 | 105.45                                  | 187.81                   | 102.02 | 58.51  | 3.03                                     | 68.90  | 2584.30                        | 25.13   | 2559.17                                | 39     | 11.54 | 387  |
| 0                                     | 514.72      | 364.94                 | 272.27                                  | 231.66                   | 110.91 | 81.72  | 59.80                                    | 67.19  | 2628.58                        | 708.75  | 1919.83                                | 27     | 23.67 | 120  |
| -                                     | 354.72      | 245.54                 | 276.16                                  | 239.14                   | 112.16 | 80.15  | 60.29                                    | 68.28  | 1797.72                        | 451.11  | 1346.61                                | 16     | 21.62 | 80   |
| N                                     | 162.72      | 114.93                 | 269.11                                  | 221.02                   | 107.97 | 97.11  | 58.42                                    | 64.37  | 787.10                         | 257.64  | 499.46                                 | =      | 30.56 | 60   |
| 13 安安企业中北联企业年均循环                      | 6.28        | 4.46                   | 370.30                                  | 310.91                   | 115.68 | 60.83  | :  | 76.78  | 73.76                          | 0       | 73.76                                  | •      | •     | •    |
| 14 28公金分成每平均指标                        |             |                        |   |                          |        |  |  |        |                                |         |  |        |       |      |
| 5 30万吨以上企业平均指标                        | 122.07      | 67.58                  | 161.50                                  | 109.51                   | 13.33  | 261.22   | 31.65                                    | 14.97  | 833.27,                        | 0       | 833.27                                 | •      | 0     | •    |
|                                       | 163.97      | 109.19                 | 188.78                                  | 127.55                   | 92.34  | 174.49   | 32.87                                    | 11.99  | 1192.33                        | 0       | 1192.33                                | 0      | 0     | -    |
|                                       | 876.69      | 401.11                 | 160.16                                  | 140.69                   | 84.90  | 184.41   | 39.57                                    | \$2.36 | 4265.42                        | 49.38   | 4216.04                                | -      | 2.33  | \$5  |
| _                                     | \$13.72     | 363.77                 | 169.03                                  | 148.84                   | 97.44  | 110.78   | 48.76                                    | 18.88  | 2673.56                        | 340.30  | 2333.26                                | 11     | 15.28 | 7.3  |
| 19 4.4~4.5万吨企业平均信息                    | 1118.02     | 817.43                 | 173.93                                  | 158.95                   | 97.28  | 96.54  | \$2.39                                   | 63.50  | 7318.91                        | 988.91  | 6330.00                                | 36     | 13.74 | 271  |
| 0 1~4.4万吨企业平均指引                       | 1495.67     | 1111.02                | 184.98                                  | 175.56                   | 101.61 | 86.99  | 59.64                                    | 69.19  | 8940.23                        | 1655.56 | 7284.67                                | 175    | 19.10 | 916  |
| 21 万吨以下企业平均均位                         | 455.93      | 351.36                 | 189.89                                  | 211.44                   | 109.87 | 41.43  | 72.81                                    | 75.06  | 2426.06                        | 1436.64 | 989.42                                 | 304    | 33.19 | 1001 |
| 22 分属数平均先进和1.                         |             |                        |   |                          |        |  |  |        |                                |         |  |        |       |      |
| 23 8.8万吨以上业事企业                        |             |                        | 141.87                                  | 114.98                   | 82.41  | 173.01   | 34.56                                    | 47.83  |                                |         |  |        |       |      |
| 24 4.4~8.8万吨立案企业                      |             |                        | 150.03                                  | 132.17                   | 87.26  | 135.43   | 46.06                                    | 57.13  |                                |         |  |        |       |      |
| 25 1~4.4万吨立在企业                        |             |                        | 157.78                                  | 140.23                   | 19.35  |  | \$1.74                                   | 61.64  |                                |         |  |        |       |      |
| 10                                    | - 1         |                        | 172.84                                  | 164.31                   | 97.37  |  | 59.32                                    | 65.77  |                                |         |  |        |       |      |
| 27年40年                                |             |                        | 237.64                                  | 196.87                   | 97.90  | 105.77   | 11.91                                    | \$6.55 |                                |         |  |        |       |      |

# Key [Table 3]

- 1. Average national indices
- 2. Including
- 3. Average indices of enterprises in cement trade
- 4. Average indices of enterprises not in cement trade
- Average indices of enterprises run by communes and production brigades
- 6. Average indices of enterprises with vertical kilns
- 7. Average indices of enterprises with vertical kilns in cement trade
- 8. Average indices of enterprises with vertical kilns not in cement trade
- 9. Average indices of enterprises with vertical kilns run by communes and production brigades
- 10. Average indices of enterprises with rotary kilns
- 11. Average indices of enterprises with rotary kilns in cement trade
- Average indices of enterprises with rotary kilns rot in cement trade
- 13. Average indices of enterprises with rotary kilns run by communes and production brigades
- 14. Average indices of different scopes of operation using vertical kilns
- 15. Average indices for enterprises producing more than 300,000 tons
- 16. Average indices for enterprises producing 200,000-300,000 tons
- 17. Average indices for enterprises producing 100,000-200,000 tons
- 18. Average indices for enterprises producing 88,000-100,000 tons
- 19. Average indices for enterprises producing 44,000-88,000 tons
- 20. Average indices for enterprises producing 10,000-44,000 tons
- 21. Average indices for enterprises producing less than 10,000 tons
- 22. Average advanced indices for different scopes of operation
- 23. For enterprises with vertical kilns producing more than 88,000 tons
- 24. For enterprises with vertical kilns producing 44,000-88,000 tons
- 25. For enterprises with vertical kilns producing 10,000-44,000tons
- 26. For enterprises with vertical kilns producing less than 10,000 tons
- 27. For enterprises with rotary kilns
- 28. Provinces, municipalities and autonomous regions
- 29. Cement output (in 10,000 tons)
- 30. Clinker output (in 10,000 tons)
- 31. Energy consumpt ion
- A. Consumption of standard coal in clinker production (kilogram/ton)
- B. Comprehensive consumption of standard coal in cement production (kilogram/ton)
- C. Comprehensive electricity consumption in cement production (kWh/ton)
- 32. Output value per person (ton/person.year)
- 33. Per-unit production cost of cement (yuan/ton)
- 34. Average selling price (yuan/ton)
- 35. Profit and loss
- D. Amount of profit (10,000 yuan)
- F. Amount of loss (10,000 yuan)
- F. Balance in profit and loss (10,000 yuan)
- G. Number of enterprises incurring losses
- H. Percentage of enterprises incurring losses
- 36. Total number of tactories whose outputs are included in statistics

9411

CSO: 4006/151

INDUSTRY

#### BRIEFS

U.S. OIL DRILLING--Guangzhou, 8 Jan (XINHUA)--The "Glomar Java Sea," a U.S. oil drilling rig, has reached the Yingge Sea, south of Guangdong Province's Hainan Island, for joint petroleum development with the South China Sea Oil Company of China. Under a contract signed last September, the China National Offshore Oil Corporation (CNOOC), the American Arco China Inc. and Santa Fe Minerals (Asia) will jointly explore, develop and produce oil and gas in a section of the Yingge Sea Basin area in the South China Sea. The South China Sea Oil Company is a CNOOC branch. The area covered under the contract is outside the zones marked for the first round of foreign bidding. The semi-submerged, self-propelled rig, built by the Global Marine Drilling Company of the United States, is suitable for deep-sea operations and was hired by the Arco Company to drill the first exploratory oil well under the Sino-American cooperation plan. The South China Sea Oil Company has sent dozens of technicians to work on the rig. [Text] [OWO80856 Beijing XINHUA in English O717 GMT 8 Jan 83]

CSO: 4010/32

#### CONSTRUCTION

ECONOMIC VALUE OF URBAN, SUBURBAN REDEVELOPMENT COMPARED

Beijing JIANZHU XUEBAO in Chinese No 8, 1982 pp 27-29

Article by Rui Jingwei [5360 4842 48857: "Economic Value in Redevelopment of Beijing Metropolitan Area and Construction in Nearby Suburbs"]

Text What should be done about the construction of the suburbs and the redevelopment of the old city in the future? There are now different views on the way to solve this problem. Here are my views concerning a comparison of these two undertakings.

1. The scope of distinctly comparable factors.

There are many complex factors affecting the economic results of urban construction, such as the standards of designs for housing construction itself, the conditions of construction, the density of planned construction, the ratios in the composition of various facilities for residential areas, the relationship between the parts and the whole and between long-range and short-range plans, and so forth. However, in comparing the economic value of transforming old areas with that of new construction in the suburbs, we must first ascertain the comparable factors.

We should compare only the construction costs whose differences are caused by different regions and different objective construction conditions, but not by changes in human factors (such as the design standards, the structural forms, the level of construction organization and so forth). Only such a comparison can clarify the problem. In comparing the transformation of old areas with housing construction on new land in the suburbs, we must pay particular attention to the following aspects:

- (1) The economic losses from the demolition of old houses.
- (2) The expenses incurred in the acquisition of land (such as the expenses for the demolition of houses, leveling the land, relocating the displaced families, compensation for the farmland and the crops, and the handling of other material objects on the land).
- (3) The public facilities in both urban and suburban areas.

- (4) The differences in expenditures caused by different geological and landform conditions in working on the foundation and improving the environments.
- (5) Expenses on the displaced people (in urban or rural areas). These expenses are sometimes included in (1) and (2). Sometimes, however, when large numbers of people are to be transferred from the countryside to the cities, the municipal authorities should take care of their production and living expenses, which should be compared separately.
- 2. A unified method for cost comparison to be used in urban construction.

Without such a unified method, there can be no way to compare the economic values.

In the past several years, the Beijing authorities tried to redevelop five densely populated areas with dilapidated and dangerous buildings (Qingnanhu, Beiyingfang, Heiyaochuang, Jinyuchi and Anhuabeili) without moving the original residents away from these areas. The result of redevelopment showed that for every square meter of floorspace demolished, a new floorspace of 4 square meters can be built, and after allocating approximately 2.4 square meters to the people, there is 1.6 square meters left. The average gross floor area is 13,000 square meters per hectare. The advocates of redevelopment use the total new construction area as the base figure for their calculations and claim that since the expenses on public facilities and supportive projects in redevelopment are less, and the average construction costs are lower than required in building new residential areas, redevelopment is more economical.

Building houses in the suburbs generally requires less tearing down. In Jingsong area, for example, the houses to be torn down amounted to only 5 percent, and the houses to be allocated to the displaced people amounted to only 10 percent of the newly built area. Those advocating the construction of new residential areas in the suburbs have used the allocated area as the base figure for computing the cost difference and claimed that in the redevelopment of the old city, the cost for every square meter of floorspace would be nearly 3 times that of building houses on the vacant land in the suburbs. Redevelopment is therefore uneconomical.

From this, we can see the need for unified understanding in working out a unified set of methods for calculating the cost difference in urban construction in order that the incomparable portions of the actual construction cost, such as design standards, structural forms, and the different levels of construction quality, can be excluded. By "eliminating the false and retaining the true," we will be able to carry out realistic analyses on the differences in investments under different conditions in different regions and supply scientific data for policy decisions.

In my opinion, the logical method should be the use of the actually increased housing area as the base figure for comparing construction costs and measuring the economic value between building new residential areas and redeveloping old areas. For example, if the principle of "tearing down one, building three, allocating two and leaving one" is adhered to, the "two" should be used

as the base figure, for the reason that the increase of 2 square meters to improve the residents' housing conditions should be in line with the basic goal of housing construction. However, because of the very low quality of the old houses and their equipment, the value of the demolished houses cannot be the same as that of new houses. Therefore, it should be more practical to take the value depreciation into account; otherwise, the calculation will be too sweeping and the result may be erroneous.

3. Formulas for working out the comparative costs in urban construction.

Formula 1: Suggested for working out comparative costs in housing construction:

Per-unit construction cost (yuan/sq. meter)=

# Total construction investment in residential area New construction area - old construction area x depreciation rate

Total construction investment includes the following investments:

- (1) Civil engineering costs, based on standard numerical value.
- (2) Extra expenses on the foundation because of geological or landform conditions; or as required because of different planning requirements.
- (3) Total investment in municipal administration construction.
- (4) Expenses on commercial services, secondary and elementary schools, nurseries and other auxiliary facilities.

The depreciation rate should be explained as follows:

Economic value is generally reflected in quality and quantity. If the quality is good and the quantity is large, the value will be high; if the quality is poor and the quantity is small, the value will be low. There are considerable differences in the value of Beijing's old houses. When new and good houses are demolished, there is generally a residual value of 90-100 percent, while the demolition of dangerous houses generally leaves a residual value of approximately 10 percent. If the depreciation rate is included in the formula, it will be possible for quality and quantity to reflect the losses. The rate of depreciation can be as follows: first-rate house, 70-100 percent; second-rate house, 45-70 percent; third-rate house, 25-45 percent; fourth-rate (dilapilated or old) house, 10-25 percent; and fifth-rate (dangerous) houses, 0-10 percent.

These formulas can be used in both the urban or the suburban areas for the following reasons:

(1) When houses are built on vacant land and no house needs to be demolished,

per-unit cost = Total construction investment
Total newly constructed area

- (2) When more houses have to be demolished, the higher will be the per-unit cost, and more uneconomical will be the result.
- (3) For dangerous houses, there is practically no depreciation rate, and no value. Transformation is necessary, and the formula (1) can be used.
- (4) The residual value of first-rate houses is almost 100 percent. Therefore, it would be uneconomical to demolish them, but economical to build more of them. In planning, we must restrict the density of new houses in order to guard against the one-sided quest for density and economic benefits.

Formula 2: Suggested for costs of public land gained from demolition of houses:

Cost of land gained = 

total investment + loss from demolition

of depreciated houses

Area of public land gained

The total investment mentioned in the formula includes all the expenses on the construction itself and on acquiring the suburb land.

Like the comparison of costs in housing construction, this comparison does not include the total investment in the removal of homes. It is only based on the standard construction costs converted from the value of various types of houses after deduction of their depreciation losses.

For example, in opening up the road between Cixikou and Hongqiao in Beijing, 9,730 square meters of floorspace was demolished, and after the reconstruction, the floorspace was increased to 22,800 square meters. Before the reconstruction, all the residents concerned were moved into new homes, and the contracted cost for every square meter was then 220 yuan. The total municipal investment in construction was 1.3 million yjan, including the laying of pipes and the putting up of wires; the expenses on the removal of homes totaled 4.31 million yuan. According to the ordinary method of calculation, the total investment would be 4.3 times the municipal expenditures. If the suggested formula is used, we should note that these were third-rate houses with a depreciation rate of 25-45 percent, and that the resultant depreciation loss was 540,000-960,000 yuan. Thus the reconstruction increases the municipal expenditures by 40-74 percent. Only by this method can we compare the economic value of urban redevelopment with that of new construction in the suburbs. On the one hand, this method shows that the cost of urban redevelopment cannot be several times that of urban construction; on the other hand, we can see that if too many houses have to be torn down, the economic result will be worse. This point deserves particular attention when large areas are involved in reconstruction.

4. Analyses and comparisons of specific cases.

Now let us choose the newly construction Jingsong residential area for comparison with the reconstruction in five other areas having old, dilapidated and dangerous houses. Construction in all these areas began in the mid-1970's, and, because of the slow progress of the reconstruction, only onethird of the plan called for by the investment, based on the constant price of 1981, was completed. If we calculate the returns of the investment in terms of the constant prices in 1981 after the completion of the reconstruction, the results will be shown in the tables on the next page. Through comparison, we can see that if the scope of construction and the density of construction areas are about the same, all the four indices of construction costs will also be about the same. It also shows that had the reconstruction of the five areas been speeded up, and carried out in accordance with the conditions and construction standards for these areas, their economic value will be the same as that of the newly construction area. However, because of certain incomparable factors and certain required conditions not being available, some further analyses and comparisons are required in three different aspects.

Table Showing the Differences in Several Indices for the Jingsong Residential Area in Beijing Municipality and Five Reconstructed Areas

北京市劲松居住区和五片旧区改建儿项指标比较表

|    |   | 人口总数   | 生活居住  | 建筑岛              | 往七建筑    |                     | (6)                                     | 布度 及 1 | 面影像                                   | 4                           |
|----|---|--------|-------|------------------|---------|---------------------|---|--------|---------------------------------------|-----------------------------|
| Α. | <b>以往以名称</b>                                | (1)    |       | (3) <sub>€</sub> | (4) N   | + 時是                | 每人生活展<br>住用地面积<br>(7) (M <sup>2</sup> ) | (人多之頃) | 財住建筑面<br>製毛術度<br>(M <sup>2</sup> /公顷) | 新人居住<br>前 积<br>(M4)         |
| В. | 動配属住区                                       | 25.568 | 77.30 | (h , 80          | 11.7 (1 | 7.5是<br>是是37%       | 10.6                                    | 936    | 13479.9                               | 6.2                         |
| С, | 五片改建区1941年<br>上半年完成情况                       | 9629   | /     | 15.10            | 13.02   |                     |   |        | (13)                                  | (新1分配<br>2.351)<br>6.76 (15 |
| D. | 五片改建区模划这<br>到指标(格1981年<br>不整价计、公理等<br>稍有调整) | 27 149 | 28.86 | 46.57            | 37.60   | (12)<br>高層的占<br>25% | 10.5                                    | 951    | (14)<br>13031<br>(新日曜4)               | (新1分配 (16) 2.37) (16) 6.86  |

# Key:

- A. Names of residential areas
- B. Jingsong residential area
- C. Reconstruction of five areas as seen in first half of 1981
- D. Fulfillment of planned indices in the five reconstructed areas (some adjustments made in public construction, based on 1981 constant prices)
- 1. Total population (person)
- 2. Area of living space (hectare)
- 3. Total construction area (10,000m<sup>2</sup>)
- 4. Area of housing construction (10,000m<sup>2</sup>)
- 5. Average number of stories
- 6. Density and area indices

Rey continued on following page

7. Area of living space for each person (m<sup>2</sup>)

8. Gross population density (person/hectare)

9. Construction area for residential housing (m<sup>2</sup>/hectare)

10. Floor space for each person (m<sup>2</sup>)

- 11. 7.5 stories, 37 percent being high-rise buildings
- 12. High-rise buildings approximately 25 percent
- 13. Demolish 1 and build 4.6
- 14. Demolish 1 and build 4
- 15. Demolish 1 and allocate 2.351
- 16. Demolish 1 and allocate 2.37

Table Showing Comparison of Costs in Constructing Jingsong Residential Area and in Reconstructing Five Old Areas

| 北京市幼松居住区和五片旧区改建造价比较衰 (7) (8) (9) |   |             |       |           |                |                |           |                                    |  |
|----------------------------------|---|-------------|-------|-----------|----------------|----------------|-----------|------------------------------------|--|
| Α.                               | <b>维住区长数</b>                            | 新住民 B       | 723   | 总量价的%     | 平均等公顷<br>生活射性用 | 平均每千方<br>未居住建筑 | 子均每册比     | 平均等平方米                             |  |
| -                                |   | (万元)        | (3)   | 24en 1/1  | 地所谓总建价 (万元)    | 所需总量价 (元)      | 所需总章价 (元) | 住宅連价                               |  |
| 3.                               | 勃松赫住区                                   | 6816.62     | 58.9  | 10.4 30.7 | 249.69         | 214.1          | 2616.1    | 127                                |  |
|                                  | 6.片改建则1981年上半年<br>完成情况                  | 25 30 . 7 1 | 67.96 | 32.01     | ,              | 194.4          | 26 2×     | 132<br>(卡计全器<br>(任) (1<br>新任皇为127) |  |
|                                  | 6片改建区提到达到指标<br>(按1981年不安价计。公<br>建等稍有调整) | 7816.00     | 63.5  | 36.5      | 270. M2        | 207.8          | 28 47     | 132<br>(本計全器 (1<br>新迁費为127)        |  |

往,本来参考了北京市房營局資料和國家總建學局域市規划設计研究所資料。

Note: Data in tables obtained from Beijing Housing Administration Bureau and the Town Planning Institute of the State General Administration of Municipal Construction.

# Key:

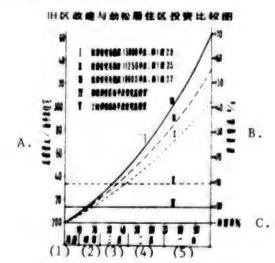
- A. Names of residential areas
- B. Jingsong residential area
- C. Reconstruction of five areas as seen in first half of 1981
- D. Fulfillment of planned indices in five reconstructed areas (some adjustments made in public construction, based on 1981 constant prices.
- 1. Total construction cost of residential areas (10,000 yuan)
- 2. Percentage of total construction cost
- 3. For residence alone
- 4. For public construction
- 5. For outdoor construction
- 6. Average construction cost for each hectare of living space
- 7. Average total construction cost for each square meter of floorspace
- 8. Average construction cost per person (yuan)
- 9. Average cost for each square meter of floorspace
- Should be 127 if expenses on removal of homes and demolition of houses are excluded
- 11. Same as (10)

(1) Reconstruction of the five areas was undertaken by the housing administration departments. Although the costs of construction designs and structures and the proportion of high-rise buildings here were not higher than in Jingsong, the residential construction cost is higher because of the higher cost of structural components used by the housing administration departments, the organization of construction work and other factors. Therefore some readjustment is necessary.

The construction cost for the reconstruction areas as shown in the table includes the expenses on demolition of houses and removal of homes which should have been excluded. This should also be readjusted. Finally the cost of 127 yuan for each square meter is used as the standard construction price for residential houses.

- (2) The gross density in the five reconstructed areas was formerly 3,224 square meters per hectare, whereas in the old urban areas, it was 4,500 square meters or more. Therefore, the calculation must be based on 4,500 square meters.
- (3) Because of the enlarged scope of reconstruction and the higher ratios of public service and other auxiliary facilities, the density of residential houses in the reconstructed areas is generally less than 13,000 square meters as required by the overall plan. Future reconstruction will gradually develop in the following three directions:
- 1) If a local balancing leaves some surplus and the density of residential houses is approximately 13,000 square meters, build 2.9 square meters for every square meter demolished.
- 2) If a local balancing leaves no surplus and the density of residential houses is approximately 11,250 square meters, build 2.5 square meters for every square meter demolished.
- 3) In accordance with the requirements of the overall planning and the need to preserve the historical structures of the city, and provided the average gross density in the whole city is 10,000 square meters, 2.2 square meters should be built for every square meter demolished.

Figure Showing Comparisons in Investments in Reconstruction of Old Areas and Construction of Jingsong Residential Area



/Key on following page/

Kev:

- Density of residential houses 13,000 square meters, building 2.9 square meters for every square meter demolished
- II. Density of residential houses 11,250 square meters, uilding 2.5 square meters for every square meter demolished
- III. Density of residential houses 10,000 square meters, building 2.2 square meters for every square meter demolished
  - IV. Total investment in 1 square meter of residential floorspace in Jingsong residential area
  - V. Total investment in 1 square meter of residential floorspace after readjustment of land cost
  - A. Total investment (yuan/square meter)
  - B. Investment variations (in percentage)
  - C. Depreciation rate (in percentage)
  - 1. Dangerous house
  - 2. Dilapidated house
  - 3. Third-rate house
  - 4. Second-rate house
  - 5. First-rate house

As shown by the results indicated in the figure, and based on three different conditions, the investment in the reconstruction of dilapidated, old and dangerous houses can be either higher or lower than in Jingsong. When the scope of reconstruction is enlarged to include third-rate houses and the depreciation rate is 30-35 percent, it will be the same as in new construction in the suburbs. When the scope is enlarged to include first-rate and second-rate houses, the investment will be higher than in Jingsong by approximately 40 percent, and obviously uneconomical. According to the theory that less repairs are required on good houses and that more repairs are required on inferior houses, we will have spent more on the repair of danger-ous houses, if they are kept longer. Therefore, the economic value of rebuilding dangerous buildings is even more obvious.

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CSO: 4006/134

# DESIGN FOR ELECTRONIC'S PLANT CLEANROOM DESCRIBED

Beijing JIANZHU XUEBAO [ARCHITECTURAL JOURNAL] in Chinese No 10, 1982 pp 63-68

Article by Tan Yusheng 6223 5940 5116: "Design for the Cleanroom of Xiangfan Instrument Component Plant"

Text To produce and develop special electronic elements to meet the requirements of automatic equipment in the machinery industry, the Xiangfan Instrument Components Plant has built a cleanroom—an integrated circuit production shop of 3,445 square meters.

Construction of this cleanroom began at the end of 1975 and was basically completed in early 1980. After more than 1 year's trial production, its cleanliness, humidity, noise control, protection against microseism, airconditioned static pressure and other technical parameters have been confirmed to be up to, or even above, the designed standards, and with excellent engineering effects. After the acceptance check by the state in 1981, it is now in regular operation.

- I. Environment and Horizontal Layout of Plant Premises
- 1. Environment

The plant is located in the suburbs of Xiangfan Municipality and the central portion of the valley along the Hanshui River. It is surrounded by mountains and iorests on three sides, with the remaining side facing a vast expanse of farmland and a village in the north. The environment of the plant site has the characteristics of a farming village usually seen in the hilly regions south of the Changjiang River. Because of its fairly superior natural environment, the dust contents in the air and the vibrations and noise from external sources are very minor. Practical tests have shown that when the atmosphere is generally stable, the amount of particles greater than 0.5 microns contained in the outdoor air is approximately 5 x 104/liter. This is close to the density of dust contents in the atmosphere of rural areas. In the absence of any vibrations of an industrial nature originating from the plant itself, the amplitude of ground pulsations in any direction is less than 0.1 micron. In short, the environment of the plant is very suitable for the construction of a cleanroom.

## 2. The General Horizontal Layout

The cleanroom is located on a platform in the rear portion of the plant premises. It faces the south with its back toward the north, with mountain slopes and forests in the east and south, and the valley in the west.

The refrigeration room, an important supplement to the cleanroom, is located 22 meters away from it at the northwest. The elevation of the refrigeration room is 2.1 meters lower, conforming to the contour of the ground surface. It basically meets the requirements of precaution against vibration and explosion because of its distance from the cleanroom. Practical tests have proved that the vibrations produced during the operation of the refrigerator do not affect the production of high-precision components in the cleanroom.

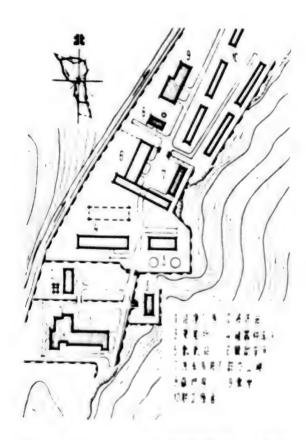


Figure 1. General Hordzontal Layout

#### Kev:

- 1. Cleanroom
- 3. Transformer room
- 5. Hydrogen-oxygen station
- 7. Garage and plant office
- 9. Mess hall

- 2. Refrigeration room
- 4. Silicon workshop
- 6. Auxiliary workshop
- 8. Boiler room
- 10. Dormitory

The transformer room is located on a platform on the slope northeast of the cleanroom. In the horizontal layout and elevation design, it combines with the cleanroom and the refrigeration room to form an organic structural group and an independent zone which will not be disturbed by the flow of human or material traffic.

In order that the environment of the clean room will be free from pollution, the boiler room, which emits smoke and dusts, is built outside the clean producing zone so that its chimney can be 250 meters away from the clean room. Due measures have also been taken in the technical design to minimize the pollution of the clean area from smoke and dust. Tests with dust particle computers after the beginning of regular operation have shown that even under the most unfavorable wind conditions, the smoke and dust from the boiler cannot cause any noticeable pollution.

To prevent the dust and noise caused by vehicle transportation from affecting the clean area, the garage and warehouse of the plant were built in the front portion of the premises, as far away from the clean room as possible. Consideration was also given to pollution from smoke and dust in the choice of the mess room site.

## 3. Design for Tree-Planting

Tree-planting in the plant premises can help to reduce dust, purify the air, minimize noise and improve the hygenic conditions as a means of creating a good environment for production and living. Greenery for the plant is particularly important to the cleanroom.

According to the design, we have planted trees along the roads as well as in the yards. For the plant as a whole, stress was laid on lining the roads with trees; for the cleanroom and its surrounding areas, planting trees in the yards was given greater attention. To give a green appearance to the yards around the cleanroom, turf was mainly used. We also selected some tall erect trees which are attractive in appearance and can stand trimming, such as cedar, palm, Chinese littleleaf box, tobira and Chinese ilex in addition to some other trees and bushes. The trees were planted singly, while the bushes are used to cover the ground or the fences.

In giving a green appearance to the yards around the cleanroom, we had to attend to several problems. The planting of grass and flowers of an aesthetic nature should not be excessive, since they can last only 1 year so that in the next year, we would have to sow the seeds, turn the soil, or transplant them, thus destroying the green cover and leading to dust pollution. We planted turf as much as possible so as to reduce road—surfacing or ground—surfacing with human labor. The roads and ground around the cleanroom are not to be swept clean with brooms which can cause dust pollution. Instead, we installed spraying facilities for watering the grass lawns as well as for flushing the streets. Practice has proved these measures to be necessary.

# 11. Construction Design

#### 1. Choice of Structural Form

We adopted a mixed structural form for this building. The horizontal parameter for the main structure (the clean production area) is 4 x (6 + 2.4 + 6) meters, and technical corridors, 1.5 meters wide, are added to both sides. The load-bearing walls are general 240-brick walls. Four inner vertical walls were erected for hidden pipes and lines and electrical accessories. These are 370-brick walls. No wall posts with protruding ends were erected so that the wall face could be perfectly flat. There are equipment mezzanines with a 70 [millimeter] thick concrete floor for various tubes and lines. Practice has proved that these measures are useful in keeping the environment clean and affording convenience in work.

# 2. Surface components

The cleanroom is mainly divided into five main portions, each having a different function: a 10,000-grade clean work area; a 100-grade clean work area; nonclean supplementary work area (for checking, testing and screening the finished products and other processes); purification and air-conditioning room; and the personnel purification room.

The 10,000-grade clean work area is the main component in the horizontal layout. It consists of the cleanroom, and is of two stories, both having equipment mezzanines. The combined area of both stories is 1,505 square meters, including 1,210 square meters being occupied by the cleanroom. The air-conditioning room (1) is close to the eastern end of the clean work area. It also consists of two stories, serving the two levels of the clean area, and has a total area of 349 square meters. Of every square meter of clean area, 0.29 square meter is taken up by engine-rooms. Practice has proved the correctness of this proportion.

When the plan for the 10,000-grade clean area was first drafted, we thought of building a windowless factory-house as a more effective measure to insulate it from the outer environment and to reduce the possibility of pollution. However, we also thought of the people engaging in production over long periods in a windowless house which cuts them off from the outside world and are apt to tire them out physiologically and psychologically. To improve the environment for production so that the workers can have a sense of contact with natural envisorment outside, watch the passing of time, and feel the change of seasons; and to make use of the vast expanse of green area outside as a means of relieving the visual fatigue of these workers, we have added a 1.5 meter wide air-tight corridor on both the southern and nortiern sides. This has made it possible for observation windows to be opened on the outer walls of the cleanroom. Thus we succeeded in improving the environment of production for the workers in the cleanroom without lowering the standard of cleanliness. Furthermore, the air-tight outside corridor can serve some other useful purposes:

Through the indirect use of natural light, the lighting condition in the cleanroom is improved.

The various tubes and lines as well as electrical accessories for public use can be moved out at the cleanroom into the corridor, so as to ensure a flat surface for the inner walls of the cleanroom and to reduce the possibility of dust accumulating on the inner wall surface. This will be more convenient for the tubes, lines and electrical accessories to be attended to or repaired.

Part of the appurtenances of the technical equipment (such as mechanical pumps) can be moved out of the cleanroom into the corridors so as to reduce the vibrations and impure air discharged which would impair the clean environment for production.

There are many exits from the clean work area to the corridors as well as safety exits out of the building. This is also an important measure for evacuating this type of air-tight building in case of fire.

The 100-grade clean work area is the core of this cleanroom, and takes care of photoetching, fine contraction, plate-making and other work-process. It has a clean area of 115 square meters and a system of perpendicular laminar air circulation. Because of the need for purification, this area is not equipped with windows, and every effective measure has been then to preserve air-tightness for the hidden installation of lighting equipment with its tubes and lines.

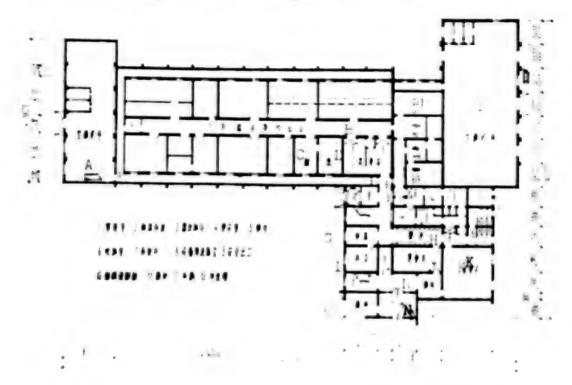
Adjacent to the western side of the 100-grade clean area is air-conditioning room (2). It is also of two stories, both serving the 100-grade clean areas, and has a total area of 610 square meters. Each square meter of the clean production areas is served by an average of 5.3 square meters of the air-conditioning room area.

The nonclean supplementary work area, including the personnel purification room, is located in the front portion of the structure, according to their own functional requirements and the plan of space utilization. It is of three stories. The first floor is used as the personnel purification room; the second floor for finished product testing and the third floor for producing purified water.

The chemical treatment chambers on the first and second floors of the 10,000-grade clean area use a great deal of purified water and was built close to the water purification roomat the western end of the structure, so that the water pipes could be as short as possible and thus ensure the purity of water.

We thought of the corrosive effects of the acid and alkaline fluids—used in purifying the water—on the structure. That was why we built the acid and alkaline preparation rethe first floor to maintain independent outside contact. With a booste the prepared fluid is supplied to the third water purification reconnected in the prepared fluid is supplied to the third and for washing in electrodialysis.

Figure 2. Plane Diagram of Lover Floor



#### Key:

- 1. Control room
- 2. For umbrellas and raincoats
- 3. Wash basins and showers
- 4. For changing dress
- 5. For changing shoes
- 6. Blowing and spraying chamber
- 7. Elevator
- 8. For washing dust off equipment
- 9. Safety exit
- 10. For acid-alkaline prepara-
- 11. Toilet
- 12. Corridor
- 13. Washing troughs

- A. Air-condition room (1)
- B. 10,000-grade clean work area
- C. Acid
- D. Wash
- E. 100-grade clean work area
- F. Air-conditioning room (2)
- G. Lounge
- H. Washing basins
- I. Office
- J. Male changing room
- K. Female changing room
- L. For changing shoes
- M. Reception room
- N. Front hall

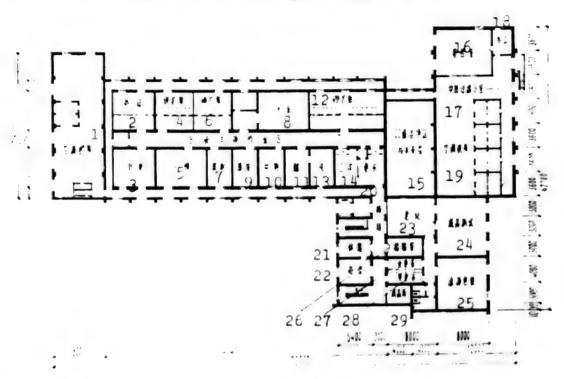
For the equipment and bulky objects coming in and going out of the clean area, there is an elevator and a washing room in a nearby annex for cleaning out the dust. Small objects are to be carried by the personnel through a blowing and spraying zone. (See Figures 2 and 3).

#### 1. Personnel Purification

People are the most important source of pollution to the environment of clean production, because of the dust they carry. Since their shoes, hats, clothing

and body can carry large amounts of dust, they must go through a strict process of purification before entering the clean production area in order that they will not bring dust in to the clean work area and pollute the environment. Based on the different requirements for clean environment for various components of the integrated circuit production shop, different procedure: for purification were worked out. (See Figure 4)

Figure 3. Plane Diagram of Upper Floor

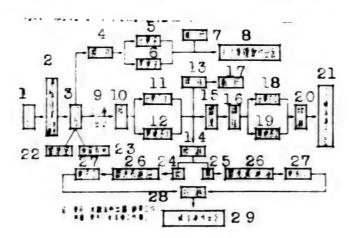


key:

- 1. Air-conditioning room
- 2. Extension
- 3. Sealing and packing
- 4. Antimony proliferation
- 5. Pressure welding
- 6. Phosphate proliferation
- 7. Spraying
- 8. Photoetching
- 9. Evaporation
- 10. Intermediate checking
- 11 and 13. Acid washing
- 12. Borax proliferation
- 14. Second change of clothing
- 100-grade clean area and technical intercalation

- 16. Power control chamber
- 17. Medium filter chamber
- 18. Office
- 19. Air-conditioning room
- 20. For changing shoes
- 21. Lounge
- 22. Office
- 23. Ageing
- 24. Finished product testing
- 25. Coating and packaging
- 26. Inspect ion room
- 27. Female change room
- 28. Male change room
- 29. Finish product storage

Figure 4. Procedures for Purification of Personnel



Key:

- 1. Entrance
- 2. For washing away dirt from shoes (washing and brushing)
- 3. Front hall
- 4. For changing shoes
- 5. Female changing room
- 6. Male changing room
- 7. Toilet
- 8. Nonclean supplementary area
- 9. Clean work area
- 10. For changing shoes
- 11. Female changing room 1
- 12. Male changing room 1
- 13. For changing shoes
- 14. Blowing and spraying

- 15. Washing basin
- 16. For changing shoes
- 17. Toilet
- 18. Female change room 2
- 19. Male change room 2
- 20. Blowing and spraying
- 21. 10,000-grade clean work area
- 22. Control room
- 23. For umbrellas and raincoats
- 24. Female [blowing and spraying]
- 25. Male blowing and spraying
- 26. Washing basins or showers
- 27. Changing room 2
- 28. Blowing and spraying
- 29. 100-grade clean work area

Note: Changing rooms 1 are for replacing outdoor clothing with uniforms, and changing rooms 2 are for putting on special uniforms for the clean working area.

#### 4. Fire Prevention and Evacuation for Safety

Generally, many features of fire prevention and evacuation of the cleanroom are similar to those of other industrial plants, and the fireproof quality of the materials and structural components, and the basic causes of fire, and the way it would spread here are the same as in other plants. However, there are stricter demands on fire prevention and evacuation because of these special characteristics of the cleanroom:

(1) Many materials used in the work process in the clean on are of a combustible and explosive nature. For example, for photoetching, extension, proliferation and washing in the process of integrated circuit production, such combustible and explosive chemical materials as methyl-benzene, acetone,

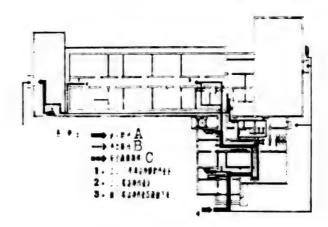
gasoline, hydrogen, oxygen, methane and silane are used. All these materials form a potential fire hazard for the clean room.

- (2) To achieve a high standard of cleanliness for the air in the room and to prevent the infiltration of polluted air, the outer structures have to be completely air-tight, and usually there are no windows or air-tight doors. In the case of fire, there will be no way for the heat to get out, and the radiation of heat will be reflected from six different sides in the room and will enable the materials inside to catch fire more quickly.
- (3) The cleanroom is air-tight with very few exits; the procedures of personnel purification are complicated; there are many zigzags in the production area including the handicaps of blowing and spraying chambers. All these factors increase the difficulty of evacuation by prolonging the evacuation routes and the time. Thus safe evacuation and rescue work cannot be easy.
- (4) In the cleanroom, the ventilation pipes form one or several large networks, each covering several rooms. The ventilation equipment is in constant operation: to maintain a correct level of room air pressure, some shifts assign workers to "ventilation equipment duty." In case of fire, the ventilation pipes will become important channels for the fire to spread to other rooms.
- (5) In the cleanroom, such materials as cyan mide, polyvinyl chloride, and polyaminoester are used; and to preserve warmth in the ventilation pipes, such materials as polystyrene are used. These high molecule synthetic materials, after catching fire, will produce thick smoke and toxic gas, and add to the difficulties of evacuation and rescue work.
- (6) Heavy investment has been made in the cleanroom containing highlypriced precision equipment. Once fire breaks out, the economic loss will be tremendous.

In view of these special characteristics of the cleanroom, we have taken due measures for fire prevention in the design and the selection of construction materials. In accordance with the requirements of fire prevention, we have, according to the design, added many evacuation routes so that the people working in the cleanroom can quickly evacuate the building through the technical corridor. Furthermore, an automatic alarm device was installed in the equipment mezzanines with the smoke indicator installed in the duty room. Type 1211, nontoxic waterless fire extinguishers are kept in the cleanroom corridors and production shops where potential fire hazards exist.

The evacuation routes in case of fire are shown in the following diagram

Figure 5. Evacuation Routes



Key:

- A. Entry
- B. Exit
- C. Evacuation route

- To 2nd and 3rd floor of nonclean supplementary work area
- 2. To clean work area on 2nd floor
- For evacuation from clean work area in 2nd floor

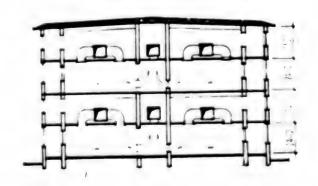
5. Sectional Design

#### (1) Sectional Form

Aside from the technological requirements, the proportions of construction spaces and the sense of sight, the sectional design of the cleanroom has also been restricted by the following factors: the layout of air-conditioning system, the way to supply and withdraw air, the installation of lighting equipment and the laying of various pipes and lines.

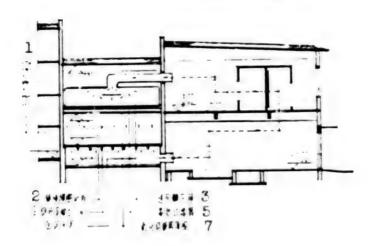
Air conditioning for the 10,000-grade clean work area takes the form of circulation from above downward and discharge at the side through the ceiling openings and the air withdrawal trunk lines. All the wind pipes and power lines are laid in the equipment mezzanines, which are 2.5 meters tall with a clear height of 1.5 meters under the joist. Experience has shown that this equipment mezzanine is not high enough and therefore inconvenient for installation and maintenance of the tubes and lines. It is suggested that in future designs, it should be 2.7-3.0 meters tall.

Figure 6. Section of 10,000-grade clean area showing air circulation



The airflow in the 100-grade section takes the form of perpendicular laminar flow. Besides the working space, there are the upper and lower subsidiary intercalary spaces. The equipment mezzanine above the ceiling is 3.3 meters tall. Here a static-pressure air-supply tank is installed together with a high-efficiency filtering layer. Under the cast-aluminum floor is a 1.5 meter deep air-withdrawal layer with a static-pressure air-withdrawal tank. On one side of the 100-grade clean area is the purification and air-conditioning engine room. Its apron's elevation is 2.0 meters higher. (See figure 7)

Figure 7. Section of 100-grade clean area and the engine room



Kev:

- 1. 10,000-grade clean area
- 2. Cast-iron joist floor
- Static-pressure air supply tank
- 4. Reinforced concrete joist
- 5. High-efficiency filtering layer
- 6. Equipment mezzanine for air withdrawal
- Oxidized aluminum fly wire ceiling

#### 6. Indoor Fixture

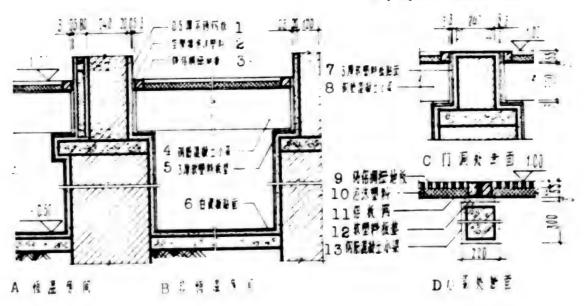
The design for the 100-grade cleanroom calls for an air-tight building of the windowless type. The wall surface is covered with a 0.5 millimeter stainless steel sheet. Under the cast-aluminum joist floor is an equipment mezzanine with white enamel floor (Figure 8), and the ceiling is lined with movable aluminum sheet screen and covered by a filtering layer.

The 10,000-grade work area floor is covered with a 3-millimeter layer of polyvinvl cloride and the seams are welded together. The wall surface is painted with an emulsion of polyvinyl acetate. The ceiling consists of a light steel and wood skeleton, and the indoor lighting is supplied from ceiling lights. Along the corridors are air-tight observation windows, each with two separated panes. The inner pane is immovable and sealed with silicagel, but the outer pane can be opened.

Figure 8.

Section of 10,000-grade Area and Air Flow Structure

Structural Diagram of 100 Grade Area Floor and Equipment Mezzanine



Key:

- 1. 0.5 mm stainless steel plate
- Crevices filled with foam plastic
- 3. Cast-aluminum joist floor
- 4. Reinforced concrete joist
- 5. 3-mm soft plastic padding
- 6. White enamel floor surface
- 7. 3-mm wood door frame
- 8. Reinforced concrete joist
- 9. Cast-aluminum joist floor
- 10. Foam plastic
- 11. Aluminum sheet screen
- 12. Soft plastic padding
- 13. Reinforced concrete joist

- A. Constant temperature room
- B. Nonconstant temperature room
- C. Door opening cross-section
- D. Cross-section of joist

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CSO: 4006/134

## CONSTRUCTION

# CONSTRUCTION STANDARDS SUITABLE FOR NATIONAL CONDITIONS URGED

Beijing JIANZHU JINGJI YANJIU in Chinese No 5, 1982 pp 14-15

Article by Wang Shouzhong 3076 0649 590 : "Setting Construction Standards on the Basis of Our National Conditions"

Text7 What is a construction standard? For civilian housing, for example, I am of the opinion that it concerns three different aspects: first, the size of the housing area; second, amenities offered; and third, the physical properties of the structure, such as its ability to withstand earthquake, to guard against fire and to provide insulation and warmth; the direction it faces; and its peaceful environment.

There is a direct relationship between the size of the residential area and the designated floorspace for each household. In the 1950's, the average designated floorspace for each household in our country was 37 square meters, which has been proved in practice to be too small. Since the climate is quite different in various parts of the country, the thickness of the outer walls cannot be the same and the materials for the partition walls are bulky and heavy. This clearly shows the undesirability of the designated standards. Since 1978, the average floorspace for each household was increased to 45 square meters, and it is generally felt that the utilization coefficient as designed is less than 0.60, which is too low. The area of small rooms is only 6 square meters which is too small and inconvenient in practical use.

The so-called amenities offered refer to living comfort, heating in winter, air-conditioning, toilet equipment, hot water supply, bathtub or shower, the use of coal, liquidified gas or city gas for fuel, or elevators. The varieties, quality and prices of all these items are many and varied, but they generally account for 30-50 percent of the construction costs. The style and safety of the structure, the insulating effects of the partitions and outer walls, the floors and the window; the heat preservation quality of the outer walls, the main direction faced by the house, and the environment, though all material properties, can have their spiritual effects on the users' livelihood, study and rest.

In short, the level of construction standards is directly reflected in the construction cost of each square meter of floorspace. A higher standard will require more investment, while a lower standard will require less. If

the question of cost is considered on the basis of the overall national situation, a rational construction standard must be consistent with the present level of national economic development and based on a harmonious relationship between accumulation and consumption. We are of the opinion that for civilian housing, more buildings of five or six stories, and less of 10-20 stories, should be built. Our conclusion is based on an analysis of the statistics on the costs and material consumption. As can be seen from the construction costs of nearly 200 buildings in Beijing, the cost for every square meter of floorspace in a building of more than 10 stories is 206 yuan, while that of a building of five or six stories is only 126 yuan, a difference of 80 yuan. The breakdown of these costs is as follows:

|                                    | For 5-6 stories    | For 12-16 stories    |
|------------------------------------|--------------------|----------------------|
| Cost per sq. meter<br>Foundation   | 126 yuan<br>11 "   | 206 yuan<br>22 "     |
|                                    | (9.0% of cost)     | (11% of cost)        |
| Civil engineering above grade 0.00 | 95 "               | 144 "                |
|                                    | (75% of cost)      | (69% of cost)        |
| Heating<br>Toilet                  | 7 " 16%<br>8 "     | 6 " 11%<br>10 " of   |
| Gas Electricity Elevator           | 3 " of<br>2 " cost | 3 " of<br>2 " cost   |
| Elevator                           |                    | 18 yuan (9% of cost) |

At present, there are millions of households with inadequate living space in the country. If the housing problem is to be solved by constructing very tall buildings, an investment of 71.2 billion yuan will be required for the buildings alone. If the buildings are of only 5-6 stories, then an investment of 4.35 billion yuan will suffice. Thus there will be a difference of 27.7 billion yuan between these two standards. This shows the great significance of working out a rational construction standard for the urban and rural areas throughout the country.

The question of construction standards exists in building not only residential housing, but also ceremonial halls, auditoriums, theaters for dramas as well as movies, railway stations, airports, wharves for inland water navigation, hotels, offices, business houses and various large public buildings. Since the state has not carried out the necessary legislation in this respect and the enforcement of procedures for economic auditing is not strict enough, the designs have usually called for a higher, rather than a lower standard because of the stress on local needs instead of taking into account the level of national economic development, weighing the pros and cons, and carrying out meticulous calculations and strict budgeting with a view to saving money. Some leaders with ideological problems are only concerned with ostentation

and extravagance, and think that without tall and luxurious mansions, there cannot be any socialist prestige to speak of. Others like to enjoy the bourgeois way of living and blindly copy the so-called "international standard" without considering economic accounting or the utility value. Huge sums of hard-earned state construction funds have been squandered in this way in the past several years. In building the song-and-dance theater in Hangzhou and the movie theater in Nanning, for example, the standards chosen were too high. For a place of entertainment accommodating slightly more than 1,000 persons, an investment of 6 million was required, meaning an average of 5,000 yuan for each seat. These are obviously luxurious theaters in view of the current low wages and low ticket fees, and the business receipts cannot cover the interests to be paid for the investment, not to speak of economic benefits. I believe that we should choose the standard being used for the auditoriums in certain government organizations in Beijing. The equipment can be plain, but must be neat and in good taste. The investment in each seat should be kept below 1,000 yuan, and this should he good enough. Again, the several railway stations in Hunan and Guangxi are too large considering the number of passenger trips and the volume of passenger traffic. The ticket booths of the Guilin railway station are built at Dali marble which is neither practical for use nor attractive in appearance. Unity several scores of planes are coming in or going out at Beijing Intermational Airport, but the lobby occupies more than 10,000 square meters and is unduly large. The layout of the many restaurants and reception rooms is far from ideal. Somebody has talked a great deal about the Frankfurt Airport in Europe. However, if we draw a circle of a radius of 1,000 kilometers with Frankfurt as the center, this circle will contain the capitals of 16 European countries; if a circle of the same radius is drawn with Beijing as its center, most of its area will be within our country's territory.

In adopting the economic open-door policy, we have built some high standard tourist hetels. Some people, again, crave for a bourgeois standard of living, thinking that, without this, a large socialist country will lose its dignity. In fact, not many capitalist country can afford to spend money lavishly, and the broad masses of friendly countries are practicing economy. Furthermore, the purpose of their travelling over long distances to China is to enjoy foreign scenery but not to live in luxury. Since we are not well-off economically, it is certainly justifiable to import certain things that can serve our purpose. However, excessive propaganda of foreign standards and slindly imposing it on domestic construction will not only go against our national custom and habit but also fail to conform to the spiritual civilization of the socialist system. Therefore, we can never disregard our specific national conditions and our real economic base by mechanically copying from Toreign experiences and practice. (Excerpts from Comrade Wang Shouzhong's "On the Question of Urban and Rural Planning, Construction Standards and Housing Construction from the Macroeconomic Point of View" Part IV)

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#### CONSTRUCTION

VIEWS ON STANDARDS FOR HOUSING CONSTRUCTION AREAS

Beijing JIANZHU in Chinese No 9, 1982 p 2

[Article by Miao Jichun [5379 1376 2504]: "My Views on Housing Standards"]

[Text] Since the Third Plenary Session of the 11th Party Central Committee, the strain on housing facilities has been alleviated, thanks to the general concern for housing accommodation. According to the data of investigations in Jilin Province, because this problem has been outstanding for a long time, there are still many families having no houses, living in overcrowded houses, or being inconveniently divided up. This will remain as a principal contradiction for some time. Here I would like to express my views on the question of housing standards in the urban areas.

## I. The Question of Standard Areas

Investigations conducted among government organs, schools, factories and ordinary household have shown considerable differences in the standards of living space. On this basis, I believe that there should be set standards for housing areas. At present, the families generally want to have more rooms even though their floorspace is less. In designs, we should increase the number of rooms for each family. This will help to a certain extent solve the problem of separating families, reduce the number of persons living in the same room, and provide more space for household activities. Along with the progress of family planning, the average number of people per family will be gradually reduced. The investigations revealed a social tendency in the composition of families, namely, married sons and daughters would move out to set up several homes, and most families with adult children would apply for smaller apartments so that their children could live somewhere else. This tendency will have a direct bearing on the setting of standards for the areas for different types of households. Since there is still serious shortage of living space and we do not have enough funds, the housing standards cannot be set very high, if they have to conform to reality and meet mass requirements. I believe that it may be proper for three different standards of 50-55m2, 56-60m2 and 61-65m2 to be set for ordinary workers' homes, and that the majority of them should have 50m2.

# II. The Question of Sizes of Rooms

The sizes of rooms should be based on the standard areas of living space. They should be convenient to people's livelihood and at the same time the space should be fully utilized. From the data of the investigation, we can see that if the rooms are too large, many people will have to live in one room, and the families cannot be conveniently divided up. The distribution of space among households may also be uneven. I feel that the sizes of rooms should be reduced and the ratio of medium and small rooms should be increased, so that there can be a rational distribution of large, mediumsize and small rooms. Then, provided the standards of areas can be suitably raised, we will be able to reduce the number of people living in the same room, change the present irrational division of families and narrow the gaps between different standards of areas. By designing more and smaller idoms, we can meet the basic needs of the residents and make better use of state investment. Therefore, I hold the following views: (1) The areas of large rooms should be 14-16m2; for medium-size rooms, 11-13m2; and for small rooms, 6-9m<sup>2</sup>. (2) In distribution among families, each family should have at least one large room. The ratios for different sizes should be: large: medium: small = 4:3:3, approximately. (3) The average area of a room should be 11-12m- .

# III. House Types and Their Proportions

in housing construction, the determination of house types and their proportions are important indications of suitability and economy. If the house types and their proportions are properly designed, it will be easier to conform to the standards of areas, to reduce the discrepancies between designs and allocation, to reduce the number of persons living in the same ruom, and to improve the methods of family division. At present, the proportion of one-room houses is fairly large and that of multi-room houses are too scarce. Furthermore, the continual rise in people's standard of living has brought along with it bicycles and sewing machines for every family, and many fammilies have continued to increase their furniture and clothing. At present, two-thirds of families have their TV sets, and laundry machines are quite common in people's homes. Some families even have radios of the thor type or gramophones. People now want more space and a large living tising for family gatherings and social activities. If house types and their propertions are determined on the basis of sex, age and generation among the smily members, the resultant standard will be unduly low. Furthermore, the makeup of population per house can change, and the allocation cannot be idjusted in time according to the change. Family activities are many and varied, some are static and others are dynamic. To reduce inconvenience, it is necessary to have more separation space between families than is provided tor according to the physiological standard. To encourage family planning the plans for division of living units should be predicated on one, or at ment two, child for each couple. This should have a direct effect on house types and their proportions. I feel that the proportion of one-room houses should be reduced and that the condition of these houses be improved with, say, the addition of concave chambers, small square halls, or other supplementary space. Practice has proved that the choice of house types and their

proportions have direct effects on the allocation of houses and the stability of housing. There are many different requirements for house types and their proportions in daily life. I suggest that designs for house types and their proportions be determined according to the following table.

| imuse type          | 1-room house        | 1 1/2-room house    | 2-room house        | 2 1/2-room<br>house |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| reportion           | 10+5%               | 40+5%               | 25+5%               | 25+5%               |
| Number of occupants | 1-3                 | 2-4                 | 4-5                 | 5-6                 |
| Area                | 14-16m <sup>2</sup> | 20-23m <sup>3</sup> | 24-28m <sup>2</sup> | 31-35m <sup>2</sup> |

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DOMESTIC TRADE

#### HANGXI MARKET INFORMATION SYSTEM CIRCULAR

OWO80227 Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 6 Jan 83

[Excerpts] To strengthen market surveys, analysis and forecasts, and improve economic information work, the Jiangxi Provincial People's Government recently made a decision calling on all competent provincial economic departments to establish and perfect the information system in order to correctly predict market changes and the development trend, and correctly guide economic work. The provincial government issued a circular to this effect.

The circular pointed out: To strengthen market surveys and forecasts and to promptly pass on the economic information to the industrial, agricultural and commercial departments are important measures for handling and arranging production and marketing and for overcoming the blindness in economic work. This is also the fundamental task of the various competent economic departments. The leading cadres of the various competent economic departments must pay full attention to, personally to market surveys and frequently organize studies on the economic information.

The circular said: To establish and perfect the economic information system, the provincial Planning Committee, the provincial Economic Committee, the provincial Statistics Bureau, the provincial Commodity Price Bureau, the Provincial Industrial and Commercial Administration, the provincial Finance Department and the provincial Commerce Department must utilize the existing organs and personnel to promptly establish and perfect their own economic information network.

The provincial Foreign Trade Department, the provincial Economic Research Institute, the provincial Institute on Scientific and Technological Information and the provincial government's liaison offices in Beijing, Shanghai and Shenzhen must also promptly collect economic and scientific and technological information at home and abroad and do comprehensive studies.

CSO: 4006/190

MAREICE TRATE

'RENMIN RIBAO' ON ELIMINATING CRIME IN SHENZHEN

HK110707 Beijing RENMIN RIBAO in Chinese 7 Jan 83 p 3

[Report: "Shenzhen Cracks Down on Economic Crimes, Promotes Construction"]

[Text] In addition to resolutely implementing the open door policy and the policy of revitalizing the domestic economy, the Shenzhen Municipal CPC Committee and the municipal people's government have resisted in developing the struggle to crack [down] on serious illegal and criminal activities in he economic sphere. They have struck effectively at the offenders who reform serious acts of sabotage against the economy, strengthened the are-corrosion power of the cadres and the masses and pushed forward the development of the various construction projects in the special economic zone.

Shenzhen is our first special economic zone. The situation there is complicated and the tasks of construction and production arducus. At the beginning of last year, after the directives issued by the Central Committee, the State Council and the NPC Standing Committee on cracking down on economic crimes had been transmitted to lower levels, there were many comrades who were worried about waging this struggle: They were worried that it would affect the implementation of the open door policy and hamper the development of the construction of special economic zone; they feared that it would affect their work, the accomplishment of the task of production and the stability of the border areas. In the light of this confusion, the Shenzhen Municipal Committee and the municipal government have successively held meetings of party members and leading cadres above the bureau level and meeting of cadres above the level of commune secretaries to link with the fact that many lawless persons are active in committing eronomic crimes in the municipality, to repeatedly study the directives and resolutions promulgated by the Central Committee and the provincial nummittee and to make people understand that the special economic zone must adhere to grasping with both hands, with one hand grasping the open door policy and the policy of revitalizing the domestic economy and with the other grasping the strike at the economic crimes, and that the healthy development of the construction of the special economic zone can only be ensured in this way. The leading comrades of the municipal committee and the municipal people's government take the lead in staying at a selected

grassroots unit to handle the cases and summarize experience. They have urged party committees at all levels to adhere to the implementation of the policy of grasping with both hands, and deepened the struggle.

Since the 12th CPC National Congress, the Shenzhen Municipal Committee has promptly held a municipal meeting on discipline inspection work, seriously inspected and summarized the work since the struggle to strike at economic crimes on the basis of the repeated study of the documents of the 12th CPC National Congress, made arrangements for the work in the next stage and selected 50 persons from the cadres who were recently transferred from armound to strengthen the ranks for handling the cases so as to resolutely carry the struggle through to the end. Up until December 1982, the municipality has exposed 154 cases of economic crimes, of which 34 have been important and serious cases; 71 cases have been wound up, 4 persons sentenced to imprisonment, 15 persons arrested and are waiting to be sentenced and 25 persons expelled from the party, discharged from public employment or removed from office. More than 600,000 yuan's worth of stolen money and goods have been recovered. Preliminary results have been achieved in the struggle.

In addition to concentrating energy for investigating and handling the important and serious cases, the Shenzhen Municipality pays special attention to combining the handling of the cases with education, rectification and reform. In this way, the process of investigating and handling the cases becomes the process in which the typical cases are utilized as materials for the vivid and concrete education of the masses and cadres on anti-corrosion and in which rectification and reforms are carried out in the light of the flaws and problems which exist in the work and system. Last year, in the light of the problems exposed, the municipal committee organization carried out financial inspection on a municipal scale, froze the "small money-boxes" and prohibited the reckless distribution of premiums; the municipal committee has in a planned and step-by-step manner carried out preliminary rectification and reforms in the management of foreign exchange, foreign affairs, the market, the borders, communication and transportation and formulated "regulations for special economic zone cadres" and the "10 provisions for improving the party style." Units under the municipality have also perfected the systems and stopped up the loopholes in the light of existing problems. In investigating an economic case which involved the bureau director and a deputy bureau director of the municipal Yower Supply Bureau, the municipal Power Supply Bureau combined the revision of the various regulations and systems with the implementation of the system of personal responsibility and strengthened the management of power consumption. Thus, work in different areas has been greatly improved. Until the end of October 1982, 143 percent of the planned value of production had been achieved. Compared with that in 1981, that was an increase of 106 percent.

At present, smuggling and selling of smuggled goods in the state-run and collective units have been basically stopped, the party style is improving and a new situation has emerged in the special economic zone. Last year,

when the world experienced a depression, there was an increase of 19.4 percent in the amount of foreign capital introduced into the special economic zone and an increase of 163.5 of actual investment by foreign merchants as compared with 1981; last year, the municipality's gross annual value of industrial and agricultural production increased by 47.8 percent as compared with 1981; the total agricultural income increased by 8.6 percent and foreign exchange income increased by 77.6 percent as compared with 1981.

DSO: 4006/190

#### TRANSPORTATION

PROCEEDINGS OF NATIONAL ROAD MAINTENANCE CONFERENCE SUMMARIZED

Beijing GONG LU in Chinese No 9, 1982 pp 3-9

[Summary of National Road Maintenance Conference--28 June 1982]

[Excerpts] From 21 to 28 June 1982, a national road maintenance conference was held by the Ministry of Communications in Pingliang County, and attended by the responsible comrades and engineering cadres of the communications (municipal administration) departments (bureaus) of various provinces, municipalities and autonomous regions; and the representatives of some advanced counties and advanced units. The China Highway Transport Trade Union, the relevant departments directly under the Ministry of Communications, the Gansu Provincial Economic Commission, GANSU RIBAO, Gansu Provincial Broadcasting Station, the economic commissions in various prefectures (municipalities) and the general highway maintenance section in Gansu Province also sent their representatives to the conference. The total number of participants was more than 180.

(I)

The meeting noted that since the national road maintenance conference held in Guilin in 1963, the broad masses of workers and staff members on the national road maintenance front have worked with great devotion under the inspiration of the "Directive Concerning Highway Maintenance and Administration" issued by the party Central Committee and the State Council, and under the leadership of the party committees and governments at various levels, and achieved great success. Most of them stayed at their posts even during the 10 years of internal turmoil, and after the downfall of the "gang of four." Particularly, after the Third Plenary Session of the 11th Party Central Committee and the efforts to set things right, the situation has continued to improve every year. The broad masses of workers and staff members have redoubled their work efforts and a large number of advanced collectives and model workers have emerged. The achievements in road maintenance are now even more outstanding.

First, along with the increase in highway mileage and in the number of vehicles, the work of regular road maintenance has also gradually increased and the road maintenance force has expanded. By the end of 1981, the total highway mileage had been increased to 900,000 kilometers, or 88 percent over 1962. In the majority of provinces, a network of highways

linking up all parts of the province with the provincial capital as the center is now taking shape. To meet the requirements of highway transport, the road maintenance mileage had been increased to 759,000 kilometers, or 84.6 percent of the total mileage open to traffic, including 693,000 kilometers which are under regular maintenance. The total number of personnel in the road maintenance system has reached 680,000, including 440,000 regular state-assigned personnel. The number of special road maintenance vehicles, tractors and machines have also been increased by a wide margin. In the country as a whole, there is now a tested and fairly well equipped road maintenance contingent.

Second, in addition to regular maintenance, gradual improvement is being carried out on the existing highways. Since the convention of the last national road maintenance conference, grade 1 roads have increaed by 4.8 times; grade 2 roads, by 8.7 times; grade 3 roads, by 3.8 times; and grade 4 roads, by 2.2 times. The total length of surfaced roads was increased from 263,000 kilometers to 676,000 kilometers, including the increase of grade 1 and grade 2 surfacing from 2,000 kilometers to 165,000 kilometers. Thus the proportion of grade 1 and grade 2 surfacing for the national and provincial trunk roads was raised to 53 percent. The number of highway ferries was reduced from 792 to 669, with much higher ferrying efficiency. The total number of highway bridges was increased to 133,000 with a total length of more than 379 meters, and 95.6 percent of them are permanent bridges. The goal of building permanent bridges has been basically attained. More trees have been planted along the roads. In 1981, 286,000 kilometers of roads were lined with trees, and the proportion of tree-lined roads was raised from 17.7 percent to 31.9 percent. The proportion of good roads in the country was up to 51.5 percent, and that of bad roads dropped to 12.2 percent.

The technical improvement of highways has helped to raise vehicle transport efficiency, expedite material turnover, facilitate people's travel and lower transportation costs. In 1980, as compared with 1962, the tonnage of vehicle transport of the highway transport departments was increased by 53.8 percent; the cost of each ton/kilometer was lowered by 30.8 percent; fuel consumption was reduced by 6 percent; and the service life of tires was doubled.

Third, the triumph over serious natural disasters has basically met the requirements for rescue work, industrial and agricultural production and national defense transportation. In addition, certain achievements have been made in road administration.

The representatives unanimously agreed that the causes of achievement in road maintenance and the main experiences gained were as follows:

(1) Formulation of realistic and specific principles, policies and rules and regulations according to the development of the situation.

- (2) Ensuring a steady increase in road maintenance funds through an efficient fee-collection system, such as unified receipts and payments and special use of special funds. For the efficient collection and control of road maintenance fees, the localities have adopted many measures to ensure a steady increase in revenues. In working out plans for road maintenance, they paid great attention to the practice of economy, and, apart from guaranteeing the availability of funds for regular maintenance, still managed to allocate funds for road improvement. In 1981, the investments in road maintenance already accounted for 27.6 percent of the total national outlay. Thus even though the state had been for many years unable to invest in the reconstruction of roads, some economic trunk highways could still be improved.
- (3) Firm reliance on the localities and the people, and implementation of the policy of voluntary labor from peasants with a subsidy from the government.
- (4) Upholding the principle of unified leadership and differentiated administration, and strengthening the road maintenance administration organs.
- (5) Strengthening the road-maintenance force by arousing the enthusiasm of workers and staff members, and paying attention to economic results in the use of funds.
- (6) Timely popularization of scientific achievements and advanced experiences of our own or other countries.

The participants at the meeting pointed out that despite the achievements made and the experiences accumulated in road maintenance and administration, the disruption by Lin Biao and the "gang of four," and mistakes in our work have caused great losses and left many problems in road maintenance.

(1) The technical standards for highways are low, funds for their reconstruction are insufficient, and their improvement is slow. There are still many deadend roads, and out of the 250,000 kilometers of national and provincial trunk roads, less than 6 percent of them can be classified is grade 1 or grade 2 highways; 20 percent of them cannot be classified; and 23 percent of them are not all-weather roads. There are more than 1,000 dangerous highway bridges, and the standards of many transregional sections are so low that traffic safety cannot be assured. In arranging for investments, we lack overall and long-range plans, and have failed to attach due importance to investigations and study or economic results. In some reconstruction projects, data is insufficient and technical and economic analyses are lacking. Some projects have been hastily started without conforming to the proper procedures, resulting in waste and loss. For many years, no state highways have been designated with the result that unified planning and coordination have been inadequate. There are still no clear indications of priorities in construction, maintenance and reconstruction so that even now, a national trunk highway network cannot be completed.

- (2) Comprehensive maintenance does not receive due attention, and the tendency toward stressing repairs and construction and neglecting maintenance still exists. At present, 138,000 kilometers of highways are left without maintenance. Even among those listed as being maintained, the percentage of good roads is low while that of bad roads is high. some localities are only concerned with the maintenance of the road surface, but not of the roadbed or the drainage facilities, with the result that the drains, slopes and even the road shoulders are damaged. Thus the road becomes narrower after each repair. Some other localities have even cut down the funds for road maintenance and for the repair of thood damage, and used the funds, ear-marked for road maintenance, on construction or reconstruction projects. Still other localities have mesidedly insisted on having more roads with asphalt surface--even though the supply of asphalt is inadequate--instead of maintaining or improving the quality of the existing asphart-surface roads. All these are potential dangers and losses.
- (3) The technical and administrative work in highway maintenance is weak. Because of the effects of the 10 years' turmoil, the ranks of professional and technical personnel have not been replenished for many years, and there is now a temporary shortage of such personnel for the work. At present, there are only 14,000 technical personnel in the entire national road-maintenance system, and an average of only 2 persons for the regular maintenance of every 100 kilometers of road. At the same time, there is a shortage of mechanical technicians and accountants for the work of mechanization and economic management. The quality of many major and medium repairs and reconstruction projects are poor, and cases of damage immediately after repairs are quite common so that the work had to be done all over again. Control is not strict enough in the use of funds, materials and mechanical tools. In some localities, the diversion of road-maintenance funds to other uses or the lavish use of these funds are also quite common.
- The supply of road-maintenance materials is not sufficient. For many years, only 20-30 percent of the 3 major materials required for the maintenance and improvement of roads has been supplied, while the supply of asphalt could only meet 1/2 of the requirement. As a result, many important highways and bridges have not been improved on time. At present, approximately 40 percent of the asphalt roads have been used beyond the limited number of years. Some highways with heavy traffic need asphalt surface, but asphalt is too scarce to meet the requirements of highway maintenance.
- (i) The working and living conditions for the road maintenance workers are quite harsh. Furthermore, lack of attention to political and ideological work has affected the stability of the road maintenance force.
- themselves by the cutting drainage ditches across highways; they have used highways as their sunning grounds, erected shacks or built kilns on them, privately set up road barricades, removed or destroyed bridge railings and

road signs, felled roadside trees, and committed other serious acts of encroachment on or destruction of highways. Cases of highway administration personnel being beaten up by mobs have also occasionally occurred. All these acts have resulted in damage to highway facilities, deterioration of road conditions, congested traffic and increased accidents.

(II)

Along with the progress of the "four modernizations" and the improvement of people's living conditions, highway transportation has become increasingly heavy, and the poor conditions of some highways will be felt more keenly. For some time to come, our highway work must be guided by the general policy of "readjustment, restructuring, reorganization and improvement" and be in accordance with the spirit of "mobilizing all possible forces to step up highway construction: as pointed out by Premier Zhao's report on the work of the government. We must rely on the localities and the broad masses and conscientiously implement the policy of "overall planning, strengthening maintenance work, positive improvement, selective development, scientific management, and guaranteeing the free flow of traffic" and the policy of combining popularization with improvement, but with greater stress on improvement. We must pay attention to the trunk and the branch roads as well as maintenance and reconstruction in orders of priority; uphold the principle of combining the peacetime requirements with the wartime requirements, and adapt measure to local conditions; vigorously carry out the work of tapping potential of renovation and of transformation; try every possible means to maintain and manage the highways well; continue to increase their traffic capacity; and improve the economic results of transportation in order to meet the requirements of the national economy, the people's livelihood and national defense. By this means, we hope to bring about a new outlook to our highways.

## The specific requirements are:

(1) Strengthen overall maintenance. Regular road-maintenance squads should be formed to keep the national and provincial trunk roads and the main county highways in good condition. All county and commune highways which have passed the acceptance checks and have regular vehicle traffic, should be maintained in different ways in accordance with the principle that "all road and vehicle traffic must be maintained." If the volume of traffic is more than 50 trips, the road should be maintained by roadmaintenance squads formed with representatives of peasants offering voluntary labor. If the number of trips is less than 50, then the maintenance job can be entrusted to communes and production brigades along the highways. However, supervision and inspection should be strengthened. The plants, mines, oilfields and other units have built their own special highways are also required to observe the regulations concerning the upkeep of their own roads. The highway departments should include these roads in their statistics and provide the necessary technical guidance. When the volume of traffic is more than 100 vehicle trips, and the number of public vehicles is more than that of the private vehicles of the units which have built these roads, then the nature of these roads should be

considered as changed; and provided these roads' technical standard is up to that of grade 4 roads, with bridges, culverts and other facilities complete, and these conditions will not be fundamentally altered in the near future, the maintenance of these roads can be transferred to the highway departments upon the application of the units concerned.

- Raise the percentage of good roads and eliminating the bad ones. In the past 3 years, the units whose proportion of good roads was lower than 50 percent of the roads under porvincial maintenance, have raised this proportion by not less than 5 percent, while those whose proportion was over 50 percent, have raised it by not less than 3 percent. With the exception of those natural roads in the border regions and those which have been destroyed by exceptionally severe floods, the porportion of bad roads should be reduced to less than 5 percent within the next 3-5 years. The proportion of bad roads among the county and commune roads which are under regular maintenance, should be reduced to less than 10 percent in 3-5 years.
- (3) Raise the proportion of well-surfaced roads and the grade of road surfacing. In 1990, the proportion of well-surfaced roads (namely, the kind of road-surface suitable for vehicle traffic on rainy days) among the trunk roads which are close to sand and stone producing areas, should be up to 100 percent; the total proportion of both trunk and branch roads should be above 90 percent; and, with the exception of Xizang, the proportion of well-surfaced trunk roads in areas not producing sand and stone should be raised to more than 70 percent. Thus the proportion of well-surfaced roads in the country will be raised from the present 75 percent to approximately 85 percent. There is now a shortage of asphalt. Besides hoping for an increase in supply, we should continue to use sand and stones for road surfacing. Sometimes, we can adapt measures to local conditions by making use of slag, gravel, coal ashes, a mixture of coal cinders, asphalt and cement, or other locally available materials for road surfacing. For the asphalt roads, our main job now is to consolidate and improve them instead of carrying out large-scale development. For those highways with a traffic volume of more than 2,000 vehicle trips, especially the grade 1 and 2 highways, we should gradually raise the rade of their surfaces so that no major repairs will be necessary for approximately 15 years.
- Raise the technical grade of trunk roads. Through maintenance, minor improvements and sectional reconstruction, we should gradually eliminate the deadend roads and the roads which cannot be classified among the national highways and the main provincial highways. In 1990, the provinces and municipalities with large plains areas and abundant funds should be able to basically attain the goal of standard line types, and the technical grade of their trunk road should be commensurable with the volume of traffic. The provinces and regions in mountainous or hilly areas which are comparatively poorer should strive to reduce the unclassifiable national roads down to less than 30 percent. The unclassifiable roads among the trunks roads throughout the country should be reduced from the present 20.5 percent of approximately 10 percent.

- (5) Reconstruct the dangerous bridges and dangerous ferries and continuing to build more bridges. We should strive to basically eliminate the dangerous bridges on the trunk roads and the principal county highways before 1990. In accordance with different conditions, most of the bridges with a capacity for lower than grade 10 trucks on the trunk roads should be reconstructed so that their capacity will be suitable for grade 20 or grade 15 trucks (the old standard was for grade 13 trucks). The ferries on the trunk roads now using human power should be reconstructed to use mechanical power. If any ferry handles more than 500 vehicles a day, active steps should be taken to replace it with a bridge.
  - (6) Increase protective engineering work and traffic facilities.
    Retaining walls, rivetments, paved drainage ditches, and other protective engineering work should be greatly increased for the roads in mountainous areas and along the rivers, so that the danger of landslides during floods can be gradually eliminated along the important trunk roads. Besides improving the various road signs, the sections of grade 1 and 2 roads with poor visual distance, should be divided into different lanes with markings according to regulations. The trunk roads near large and medium-size cities should provide more transportation engineering facilities with different lanes for fast and slow vehicles.
  - (7) Speed up tree-planting along highways. An effort should be made to plant trees in all the suitable sections within the next 3 years so that by 1985, the proportion of trunk roads lined with trees will be raised from the present 47 percent to more than 70 percent, thus by 1990, all sections will be covered with greenery. Flowers should be planted in the tourist sections to give them an attractive appearance.

The meeting held that in order to meet all these requirements, we must draw on our experiences, both positive and negative, over many years, develop our achievements and overcome our shortcomings. At present, the following tasks should deserve particular attention:

(1) Strengthen the road maintenance force by presevering in "upholding the two civilizations simultaneously." As far as present conditins permit, we should actively help the workers and staff members solve their problems in livelihood, and provide a better working environment for them. Many licelities are considering the improvement of housing conditions for the road maintenance squads by appropriating certain funds out of the road maintenance fees for their housing construction. In places where conditions are favorable, they should be supplied with TV sets, and other cultural and sports equipment so as to gradually enrich the cultural life of the workers and staff members. The communications departments at all levels should keep the higher authorities informed of the real difficulties in the road maintenance workers livelihood and strive to promote their well are. Any problems that can be solved by these departments themselves should be promptly solved. Gansu Province has done a great deal of work and gained some experiences in this respect. Many of these workers have their homes in the countryside and these areas need more workers during the busy farming seasons. Provided the roads are well maintained, some

- ilekible measures can be taken to give these workers time off. In remote ireas, the road maintenance departments should include the problem of schooling for the workers' children in their meeting agenda, and try to work out a satisfactory solution.
- (2) Efficient collection, control and use of road maintenance fees. According to state regulations, the system of unified handling of all receipts and payments and using special funds for special purposes should be id opted for road maintenance fces. The annual budget is generally worked out by the provincial highway administration bureau under a unified irrangement, and subject to approval by the communications department. Priority reconstruction projects must be reported to, and approved by the provincial planning commission. All road maintenance fees collected must be deposited into a special account and in time handed over to the higher authorities. Planned control and financial control should be strengthened so that the expenditures will not be more than the revenues, and balanced revenues with expenditures can be achieved, preferably with a little murplus revenue. The planning cannot be overly conservative resulting in an excessive surplus at the year's end. In planning for expenditures, we should first meet the requirements for minor repairs and maintenance, major and medium repairs, repairing flood damage on a crash basis and other regular expenditures on the roads under provincial maintenance. We must meet the requirements for subsidizing the maintenance of county and commune roads before arranging for reconstruction, acquisition of equipment, or subsidizing the reconstruction of county and commune roads. Monproductive expenses should be curtailed, and engineering expenditures should amount to more than 80 percent of the total outlay. In financial control, we must conscientiously implement the unified road maintenance accounting system and the relevent state regulations concerning financial control. The functions and powers of the financial and accounting personnel must be respected, and the expenditures plan, engineering budget, and other systems of financial outlay must be strictly followed. We must earnestly carry out the instructions of the State Council concerning the special funds for road maintenance, strictly prohibit the diversion of these funds to other uses, their indiscriminate use, or corruption. At present, we wint deal resolute and powerful blows at serious economic crimes and milictly deal with the offenders, so that, through this struggle, we can further improve the various rules and regulations, close the loopholes, to our work more efficiently and achieve the best possible economic results in the use of road maintenance funds.
- (3) Use peasants' voluntary labor properly. In accordance with the instructions of Comrade Hu Yaobang and the notice issued by the State Council concerning the opening up of dead end roads to the trunk roads and containing regulations on the use of peasants' voluntary labor; and with reference to the State Council documents of 1955, all provincial communications departments (bureaus) should study the actual situation in the countryside at present in combination with the experiences accumulated over many years and draft the regulations on the use of peasants' voluntary labor to be approved by the provincial people's government for implementation. Since conditions vary in different localities, they must first

study the actual needs and the amount of labor the peasants can offer before they can work out reasonable regulations concerning the scope of mobilization, the age limit, the standards of livelihood subsidy, and so forth. Such labor should be primarily used on the construction and maintenance of county highways, and then on the maintenance of trunk roads and the opening up of dead end roads. Highways below the commune level and the roads used for agricultural production belong to another categorythat of civilian management with public assistance -- and should not call for persont ' voluntary labor. In the use of such labor, all localities should adopt the system of overall planning and unified arrangement in handling the relationships between roads under provincial maintenance and roads under county maintenance, and between the construction of new roads and the reconstruction of old roads; and then work out separate plans for the numbers of service years according to different conditions. They should continue to use communes and production brigades as the units to assign their people to the road-maintenance work so as to avoid waste of manpower from working with a "great flourish."

- (4) Continuing the experiment of the system of economic responsibility in various forms.
- (5) Striving to raise the technical level of road maintenance. Road maintenance requires complex technology; therefore, scientific and technological work must be strengthened in order further to raise the technical standard of road maintenance. Besides providing technical training for the workers and staff members, we must conscientiously implement the party's policy on intellectuals and reinstate the technicians who have been compelled to change jobs during the 10 years of turmoil. We should also cultivate technical cadres in various forms so as gradually to strengthen our technical force. The performances of technicians should be carefully evaluated so that they will be given suitable titles and promotion.

Gradual mechanization in road maintenance is still our goal. However, we should do only what we are capable of doing under differing local conditions. Besides properly keeping up and using the all-puspoes roadbuilding machinery and vehicles, we should carefully finalize the designs in: qualial road maintenance machines and their accessories, and designate the plants to manufacture them. We should also train as many mechanical technicians as possible, including machine operators and repairmen. We will make every effort to attain the goal of reducing labor intensity, ensuring fine engineering quality and protecting the workers' health through the use of machinery for material transportation, loading and unloading, ground breaking and rolling, and sand recovery-all in 1985. The system of special machines for special uses and by special personnel , hould be adhered to tirmly and the system of quota management should be introduced and given full play. The machines which have proved to be effective should be developed with priority. They must not be abandoned amply because our expenses are a little heavy. Even though some machines have certain defects, we should still continue to study and improve them.

10) Attemption road administration. In accordance with the "Directive Commercing Strengthening the Maintenance and Administration of Highways" Is used by the party Central Committee and the State Council, the relevant regulations issued by governments at various levels and particularly the "Devisions Concerning REsolute Measures To Check the Plundering of and Em roaching on State Property"; under the leadership of the local government; and in close cooperation with the public security, industry and immerce and other units, we should carryout extnesive and intensive propagants and education among the cadres and commune members along the trini roads and faster the social conduct of protecting the highways and their auxiliary equipment. As to those serious cases of damaging highway fiellitles and disrupting traffic, we should rely on the local government to combust careful investigations and to deal with them, so that vigorous iction can be taken to remove all the obstacles and to guarantee the free flow of vehicle traffic. The localities can refer to the "criminal law" and the "Articles helating to Punishment in the Preservation of Public Order" and the Hubei Provincial People's Government's "Provisional Regulations for Highway Administration" and work out their own regulations on punishment in the administration of highways to be approved by the privincial government for implementation. They must overcome their fear of difficulties, and be courageous in the performance of duty regardless of personal feelings, in order resolutely to check illegal acts. Should there be any cases of serious damage to the highways, the leading comrades of the communications departments must personally contact the local government to have these cases dealt with. Some localities are trying cout the method of setting up highway administration public security organs or police organs funded by the highway departments. Their experiences should be summed up in time. The highway departments at all levels should restore and strengthen the organs for road administration or assign special personnel for this responsibility. A network of road administration of a mass character should be gradually formed with the supervisory personnel, road maintenance workers, commune members along the reads, and the neighborhood of village towns participating, and sharing the responsibility of keeping the highways in good order.

0411 1.0: 4005/151 TWO-WAY TRADE FOR 1982 DECLINES

OW111U11 Taipei CNA in English 0324 GMT 11 Jan 83

[Text] Taipei, Il Jan (CNA) -- Taiwan's two-way trade in 1982 totaled U.S. S41.087 billion, a 6.2 percent decline from U.S. \$43.81 billion in the previous year, according to statistics released by the Directorate General of Budget, Accounting and Statistics.

Exports in 1982 registered a decline of 1.8 percent to U.S. \$22.2 billion and imports dropped by 10.9 percent to U.S. \$18.89 million [as received] leaving a surplus of U.S. \$3.314 billion.

1 sports of primary products, mainly fishery products, amounted to U.S. 5377.9 million, down 22.5 percent; manufactured products such as electronic products, garments, fibers, yarns, and fabrics, footwear, and toys dropped 1.9 percent to U.S. 518.804 billion.

Imports of primary products, mainly crude petroleum, amounted to U.S. \$5.7 billion, a 12.5 percent decline; manufactured products such as machinery, electronic products, chemicals, iron and steel fell 12.8 percent to U.S. \$10.73 billion.

Two-way trade with the United States, which remained the nation's largest trade partner in 1982, amounted to U.S. \$13.32 billion, accounting for 37.4 percent of total trade. The ROC enjoyed a surplus of U.S. \$4.196 billion.

liade with Japan amounted to U.S. \$7.16 billion in 1982, leaving the ROC with a deficit of U.S. \$2.4 billion.

Exports in December totaled U.S. \$2.045 billion, a 6.8 percent increase from the same month of the previous year. It was the first month that exports registered an increase since April. Imports in December also increased 4-3 percent to U.S. \$1.67 billion. In 1982 imports registered slight increases only in December and July.

Two-way trade in December to U.S. \$3.71 billion, a 5.7 percent growth, leaving a surplus of U.S. \$362 million. [Sentence as received]

CSO: 4020/37

TAIWAN

## BRIEFS

TRADE SURPLUS--Taipei, 7 Jan (CNA)--The Republic of China achieved a trade surplus totaling U.S.\$3,300 million, but its total trade figure suffered a negative growth rate of 6.2 percent. According to V.C. Siew, directorgeneral of the Board of Foreign Trade, Last year's exports reached only U.S.\$22.2 billion, registered a negative growth of 10.8 percent. This year's foreign trade is estimated to reach U.S.\$43.77 billion, with exports set at U.S.\$23.3 billion and imports targetted at U.S.\$20.47 billion. Compared with last year's figure, the export and import growth rates are set at 6.1 and 8.1 percent respectively, Siew said. [Text] [Taipei CNA in English 0258 GMT 7 Jan 83]

INVESTMENTS DECREASE--Taipei, 8 Jan (CNA) -- Foreign and overseas Chinese investments approved by the Ministry of Economic Affairs in 1982 were worth a total of U.S.\$380 million, representing a decrease of 4 percent from that of 1981. A spokesman for the ministry attributed the decrease to the worldwide economic recession, low investment willingness and less capital increases in existing enterprises invested by foreigners and overseas Chinese. The spokesman pointed out that overseas Chinese investment projects approved by the Investment Commission last year totaled U.S.\$59.72 million, an increase of 51.33 percent in comparison with that of 1981; but foreign investments last year amounted to only U.S.\$320.29 million, a decrease of 10.11 percent. Most of the foreign and overseas Chinese investments last year went to the service industry--about 31.1 percent. It was followed by electronics and the electrical appliance manufacturing industry, 18.63 percent, and the basic metals and metal products manufacturing industry, 12.21 percent. A total of 144 technical cooperation cases were approved last year. They include: Chemical products manufacturing, 32; mechanical instruments manufacturing, 24; and electronics and electrical appliances manufacturing, 23. [Text] [Taipei CNA in English 0938 GMT 8 Jan 83]

URANTUM, TITANIUM DEPOSITS—Traces of uranium and titanium have been discovered in the central mountain range of Taiwan, it was announced on 21 December. Experts are presently analyzing samples of both kinds of ore to determine the exact content. A spokesman for the eastern Taiwan office of the provincial Bureau of Mines said on 21 December that uranium has also been discovered in Ilan and uranium titanium has been discovered in the

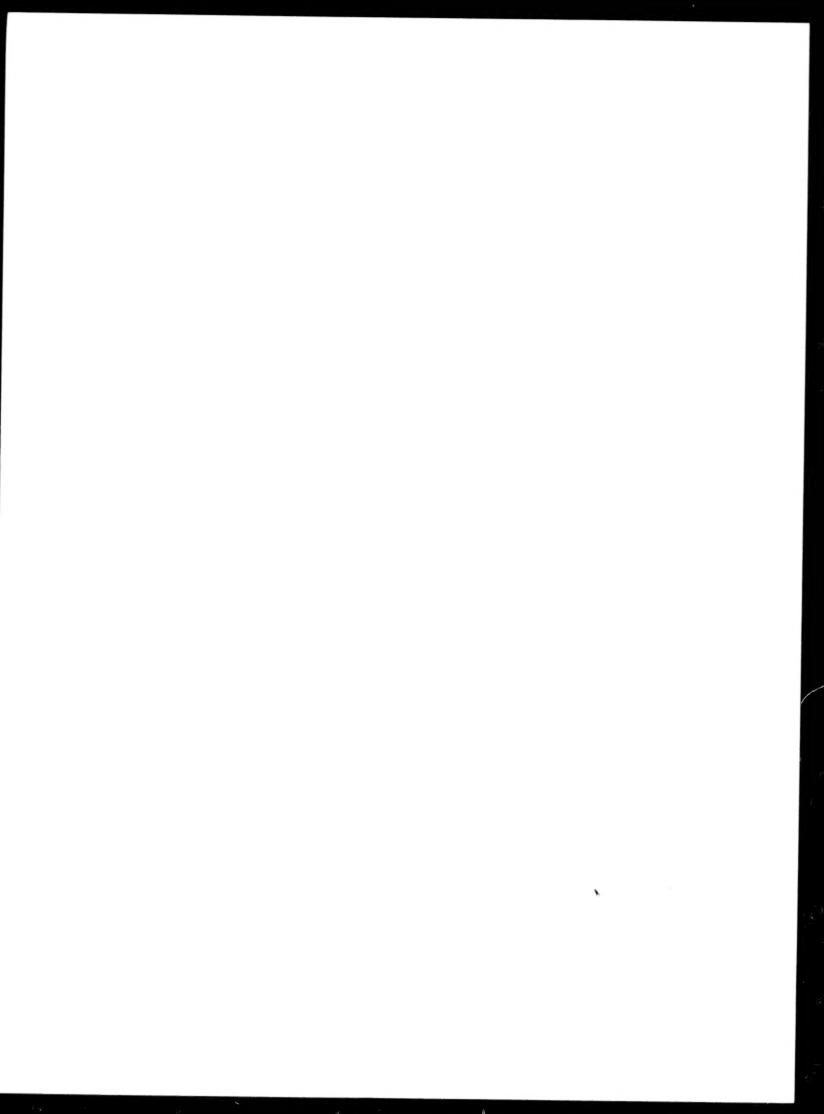
coastal region of Hualien, Taitung and "Seven Star" Mountain in Taipei County. The spokesman said that the deposits were small and no estimates had been made concerning the potential value of mining the minerals.

[Taipei CHINA POST in English 22 Dec 82 p 12]

1982 FOREIGN EXCHANGE RESERVES—Taipei, 6 Jan (CNA)—The nation's foreign exchange reserves reached a record high of U.S. \$10 billion as of the end of 1982, according to the Central Bank of China. Central Bank officials pointed out that gains from the high U.S. interest rate contributed huge earnings to the reserves. At the same time, the wide gap between local and U.S. interest rates precipitated a drastic decline in foreign exchange borrowings through the Central Bank. The officials also attributed the gigantic reserves to last year's trade surplus, which amounted to more than U.S. \$2 billion. The nation's foreign exchange reserves, which exclude gold holdings, are held by the Central Bank in mainly U.S. dollars and are deposited in major international banking institutions. [Text] [OWO60353 Taipei CNA in English 0331 GMT 6 Jan 83]

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